



## DWTA / DWT Vision / DWTA Vision



### WARNING



To reduce the risk of injury, before using or servicing tool, read and understand the following information.

The features and descriptions of our products are subject to change without prior notice.



4

# Revision history

Issue	Date	Description	Ref. firmware version	Ref. DeltaQC version
01	25 May 2012	First issue	1.1x	2.1.x

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## SAFETY INSTRUCTIONS

### Important information for safe use

These instructions concern installation, operation, handling and maintenance of product, inserted/mounted tool and equipments.



- It is vital that the operator has read and carefully understood the instructions before using this product.
- Keep instructions safe for future reference and make sure that the operator has complete access to them.
- Failure to follow these instructions may cause serious hazard.

Our goal is to produce tools that help you work safely and efficiently.

### The most important safety device for this and for any tool is YOU.

Your care and good judgment are the best protection against injury.

This tool must be not modified for product liability and safety reason. Only qualified and trained operators should install, adjust or use this tool.

All possible hazards cannot be covered here, but we highlight some of the most important. For additional safety information consult:

- Other documents and information packed with this tool.
- Your employer, union and/or trade association.
- Appropriate standards as referred to in the section *EC Declaration of Conformity*.

Further occupational health and safety information can be obtained from the following web sites:

<http://www.osha.gov> (USA)

<http://www.osha.eu.int> (Europe)

### Safety signal words

The safety signal words Danger, Warning and Caution have the following meaning:

**DANGER** Indicates a hazardous situation which, if not avoided, will result in the death or serious injury.

**WARNING** Indicates a hazardous situation which, if not avoided, could result in the death or serious injury.

**CAUTION** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### 1. Personal precautions and qualifications

#### 1.1 Installation, storage, maintenance and disposal

Installation, storage, maintenance and disposal of the product may only be undertaken by person who:

- Are physically able to handle the bulk and weight of the tool.
- Are aware of all the relevant national safety instructions and accident prevention instructions.
- Have read and understood the operating instructions.

## 1.2 Operation

Operation of the product may only be undertaken by person who:

- Are physically able to handle the bulk and weight of the tool.
- Are trained to operate the product in conformity with national directives.
- Are aware of all the relevant national safety instructions and accident prevention instructions.
- Have read and understood the operating instructions.

## 1.3 Drugs, alcohol and medication

Drugs, alcohol and medications may impair your judgment and powers of concentration.



**WARNING: Poor reactions and incorrect assessment can lead to serious accidents or death**

- Never operate the product when you are under the influence of drugs, alcohol or medication
- Prevent other people from using the product if they are under the influence of drugs, alcohol or medication

## 2. General information

### 2.1 Intended use

The DWTA is intended as measurement instrument to be used to test power tools and wrenches, and to make quality tests on joints. The product, its attachments and accessories must be only used for this purpose for which they were designated. All other use is prohibited.

## 3. Operations

### Batteries

The instruments (Vision models only) are powered by batteries.



**WARNING: Batteries can explode and cause serious injury.**

- Store the instrument and the batteries in a cool (below 30°C) and ventilate area, away from moisture, sources of heat, open flames, food and drink. Keep adequate clearance between walls and batteries.
- High temperatures may result in battery leakage and rupture.
- Short circuit can cause burn, leakage and rupture hazard; do not insert any object in the batteries contacts, keep batteries in original packaging and do not jumble them.
- Replace batteries if you have any suspect of malfunctions, or if you note any abnormal overheat during operations or battery recharge.
- Do not crush, pierce, short the batteries terminal.
- Do not directly heat or solder. Do not throw into fire.
- Keep batteries in a non conductive (i.e. plastic) tray.
- Do not disassemble, mutilate or mechanically abuse batteries.
- Do not immerse in water.
- Applying pressure or deforming the battery may lead to disassembly followed by eye, skin and throat irritation.
- Any restriction apply for battery transportation according to current UN Recommendations on the Transport of Dangerous Goods, Model Regulations.

## Correct working with the DWTa



**WARNING:** Failure to follow correct working practices cause result in serious injury or death

- Use adapters suitable for the torque applied during the test. If more than one adapter is used, consider the maximum torque of the smallest adapter used in the chain.
- Ensure that the workpiece is properly supported.
- There is a risk of electrostatic discharge if the tool is used on plastic and other non-conductive materials.
- Maintain a balanced body position and firm footing.

## BATTERIES INFORMATION according to European regulation 2006/66/CE

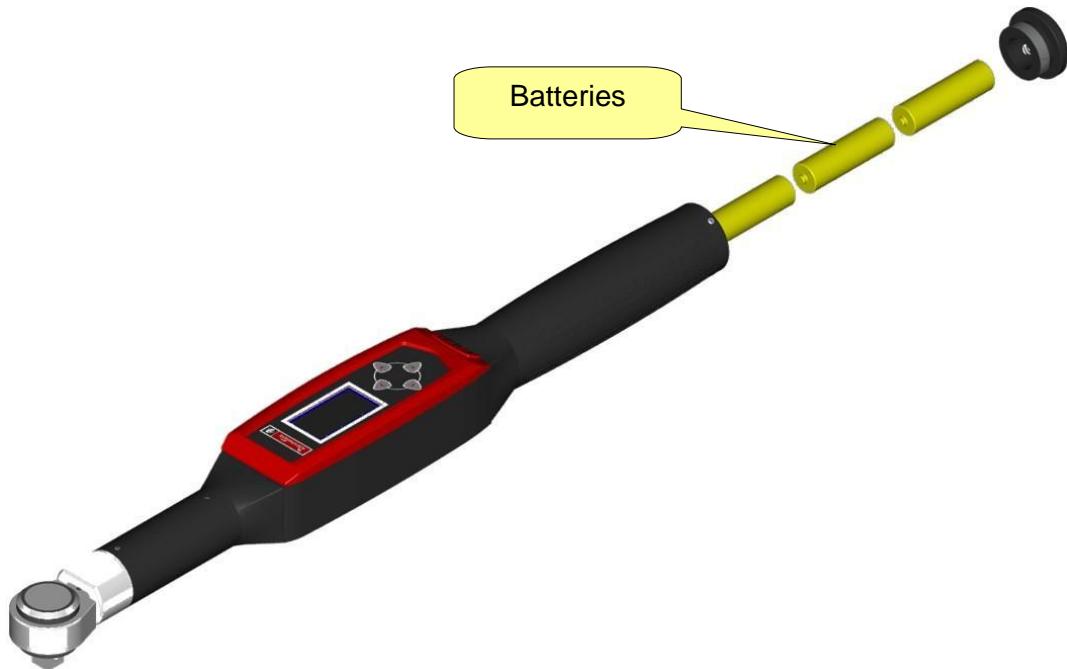
### BATTERY SPECIFICATION

**TYPE:** Three batteries 1.5V AA size



**NOTE:** Batteries are used only in the DWT/DWTA Vision models.

The battery is installed on the back side of the DWTA instrument:



**ONCE REMOVED, THE WASTED BATTERIES MUST BE DISMISSED ACCORDING LOCAL REGULATIONS**

# 1 Introduction

## 1.1 ABOUT THIS DOCUMENT

This document is a user manual for the DWT/DWTA Vision. The DWTA (no Vision model) is described in general in the first two chapters of this manual; since it can be used only connected to the Delta device, for the details of its operation, refer to the Delta User Manual.

The document is divided into the main following parts:

Part	Name	Description
Chapter 1	Introduction	This part introduces this user manual and provides the wrench technical specifications.
Chapter 2	System Overview	This part introduces the DWTA with its models.
Chapter 3	User Interfaces	This part provides an overview of the user interfaces available on the DWTA (Display, keyboard, ports, etc).
Chapter 4	Getting started with DWTA	This part guides the operator in starting to use the wrench in demo mode.
Chapter 5	Working with DeltaQC	This part introduces the operations of the DWTA management software.
Chapter 6	Pset	This part details all the parameters and tightening strategies available for a tightening or quality control program.
Chapter 7	Offline mode	This part describes how to create Psets offline, without a unit connected to the PC.
Chapter 8	DWTA settings	This part guides the operator in all the settings of the DWTA, in order to customize the product to the customer's needs.
Chapter 9	Result viewer	This part describes how to retrieve the results from the unit to the DeltaQC.
Chapter 10	Statistics	This part details the statistics calculated after the tests and the formulas used.
Chapter 11 and 12	Maintenance and troubleshooting guide	This part guides the operator in all the settings of the DWTA, in order to customize the product to the customer's needs.

Chapter 13	Calculating correction coefficients for extensions	This part details how the management program retrieves the DWTA result.
Chapter 14	Factory settings	These parts list the maintenance tasks required by the DWTA, with user troubleshooting to solve the most common problems.

## 1.2 SPECIFICATIONS

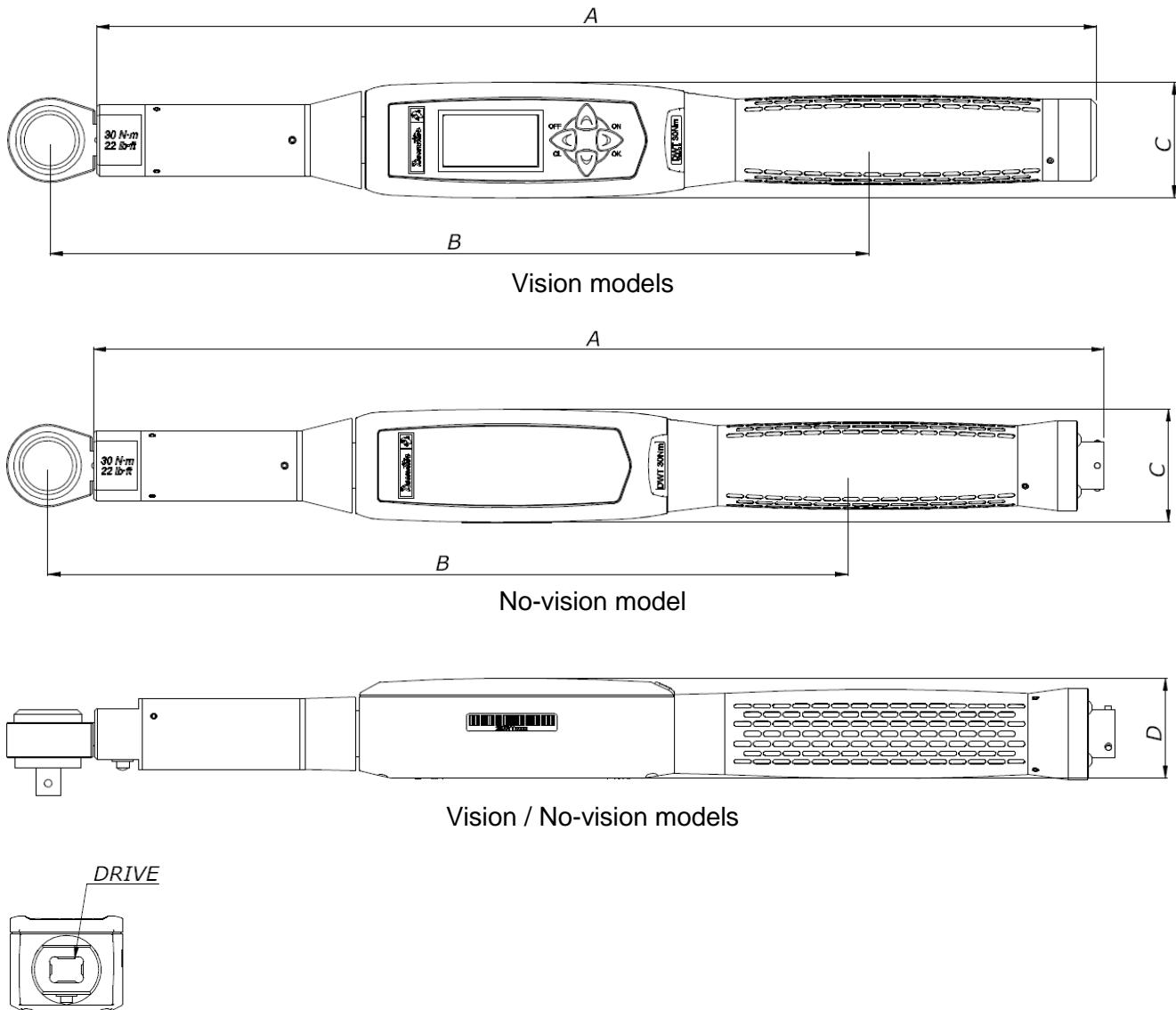
### TECHNICAL

• Torque range:	1.5 ÷ 800 Nm
• Torque static accuracy:	1% of torque reading $\pm$ 1 digit
• Torque overload capacity:	25% of FSD
• Angle measurement accuracy:	1% of angle reading $\pm$ 1 digit
• Maximum angular speed:	150 °/s
• Stability of zero offset with temperature:	$\pm$ 0.1% of FSD/°C
• Results memory capacity:	1000
• Unit of measurement supported:	Nm, Kgf·m, Kgf·cm, lbf·ft, lbf·in, ozf·ft, ozf·in, Kp·m, dN·m

### BATTERIES (Vision models only)

- Battery power supply: 3 batteries 1.5 V, AA size (rechargeable batteries can be used)
- Endurance: Minimum 4 hours' endurance in operation mode, using alkaline batteries or rechargeable batteries 2300 mAh capacity. **NOTE:** The endurance can change according to many factors including battery type and supplier, battery age and working conditions.

## DIMENSIONS AND WEIGHT



Model	A	B**	C*	D*	Drive	Weight (g)
DWTA 30 Nm	405	320	45.2	39.4	9x12	800
DWTA 150 Nm	421	342	45.2	39.4	14x18	900
DWTA 800 Nm	1378	1358	Ø 55	Ø 55	Ø 28	5000
DWT/DWTA Vision 30 Nm	391	320	45.2	39.4	9x12	800
DWT/DWTA Vision 150 Nm	407	342	45.2	39.4	14x18	900
DWT/DWTA Vision 800 Nm	1364	1358	Ø 55	Ø 55	Ø 28	5000

Dimensions are in mm.

\*Dimension C and D are the maximum dimensions; for the 800 Nm models they correspond to the maximum diameter of the transducer.

\*\* Dimension B is the standard arm (measured at the center of the end-fitting tool); these data are used to calculate the torque correction coefficient when an extension is used. This dimension is

calculated for the standard end-fitting tools; if a different end-fitting tool is used, this measure must be recalculated. See *Appendix A - Calculating correction coefficients for extensions* for details.

## ENVIRONMENTAL

The following conditions must be observed during operation:

- Internal Use only
- Environmental Class: II
- IP Grade according to EN IEC 60529 (except connector): IP40
- Ambient Temperature: 5 to 40°C
- Operation to reduced specification over a temperature range of -10 to 60°C (DWT and DWTA models only; not for Vision models)
- Atmospheric humidity: 10% to 75%, non-condensing
- Altitude: Up to 2000m

## STANDARD CONFORMITY

- 2004/108/CE EMC Directive - Electromagnetic Compatibility
- 2006/95/CE Low Voltage Directive

## INTERFACES

- MiniUSB 2.0 port
- Connector for connection to the Delta (DWT/DWTA only)

## SYSTEM REQUIREMENTS (Vision models only)

The following are the PC minimum requirements for installation of the management software DeltaQC:

- Processor: 400 MHz (800 MHz or above recommended)
- Memory: 256 Mb or above
- Hard disk space: 610 Mb (1 Gb recommended)
- Display: 800 x 600, 256 colors (1024 x 768, High Color (16-bit) recommended)
- Operating Systems: Windows Server 2003; Windows XP
- Internet Explorer 5.01 or later (required for installation of the .NET Framework)
- Windows Installer 3.1
- Microsoft Excel (required to view the exported file with the tightening results)

Note: A system should meet these or the minimum requirements for the operating system, whichever is higher

## CALIBRATION CERTIFICATE

DWTA is provided with a Desoutter factory calibration certificate.

## 2 DWT/DWTA overview

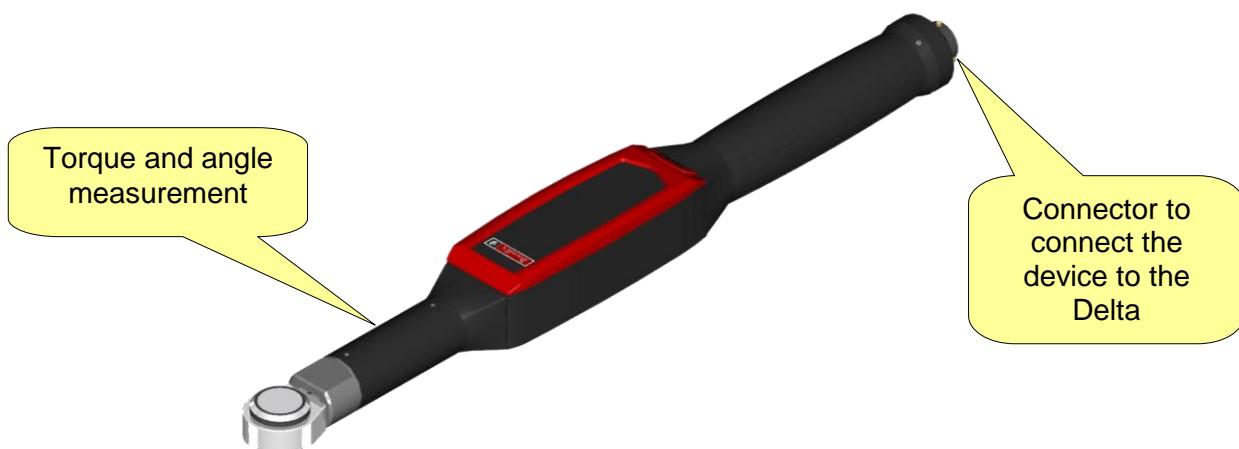


The DWTA and DWT/DWTA Vision are electronic wrenches designed for optimal operation in:

- **Tightening operations in production:** The wrench performs tightening offering a wide variety of tightening strategies. The test results can be retrieved by the wrench management software (DeltaQC), exported into Microsoft Excel and then possibly printed.
- **Quality control:** The wrench offers a set of methods to evaluate the residual torque; this makes possible to the quality of the tightening operations on a production line under control. The test results can be retrieved by the wrench management software (DeltaQC), exported to Microsoft Excel and then possibly printed.

### 2.1 MODELS

#### 2.1.1 DWTA

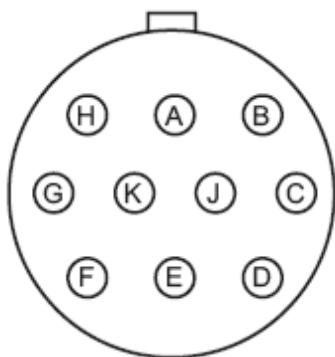


The models available are:

- DWTA 30 Nm
- DWTA 150 Nm
- DWTA 800 Nm

The DWTA is a torque/angle transducer, designed to be connected to the Desoutter Delta instrument. This instrument does not provide any user interface. The torque values, LEDs to indicate the test result, buzzer, and tightening programs are available on the Delta device.

The connector pin-out is the following:



A	MOSI	F	- 15V
B	CLOCK	G	CDE.CAL
C	CS.MEM	H	MISO
D	CS.ADC	J	CS.ANGLE
E	+ 15V	K	AGN

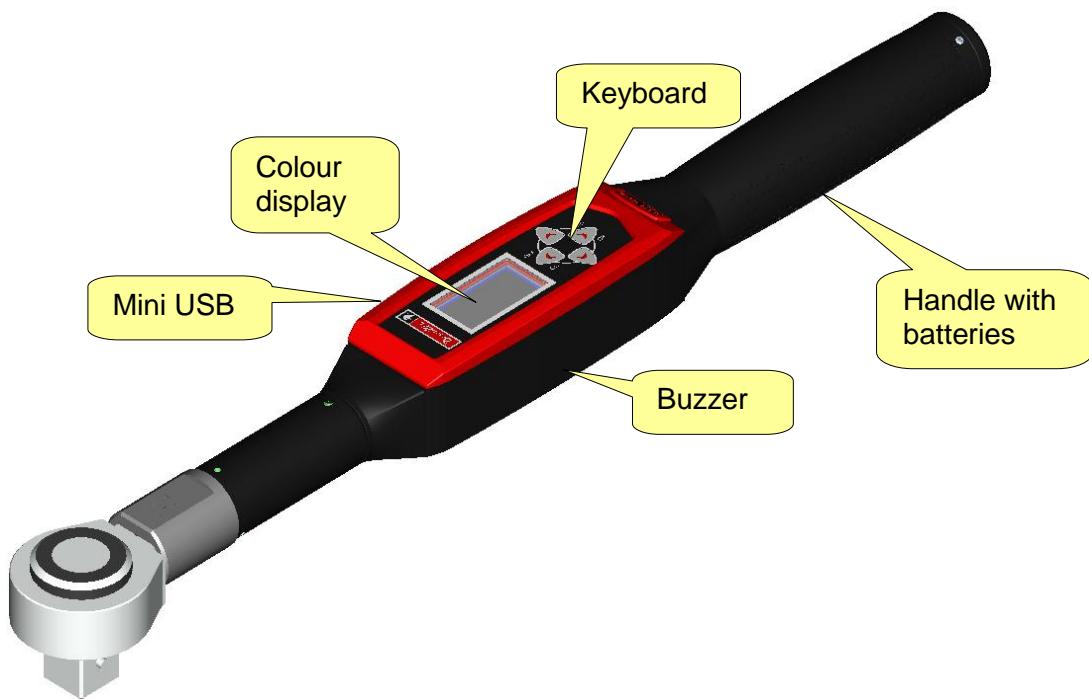
For details of the operations of DWTA with the Delta, refer the Delta User Manual.

## 2.1.2 DWT Vision and DWTA Vision

The DWT Vision is an instrument designed to execute tightening operations and quality control test on joints.

The DTWA Vision model features a gyroscope to provide also angle measurement and thus allowing a wider set of tightening and quality control strategies.

Powered by batteries, these instruments work as stand-alone devices; a specific software (DeltaQC) has been developed to program the instruments, to retrieve the test results and generated detailed statistics to monitor the quality of the tightening process.



The models available are:

- DWT Vision 30 Nm
- DWTA Vision 30 Nm
- DWT Vision 150 Nm
- DWTA Vision 150 Nm
- DWT Vision 800 Nm
- DWTA Vision 800 Nm

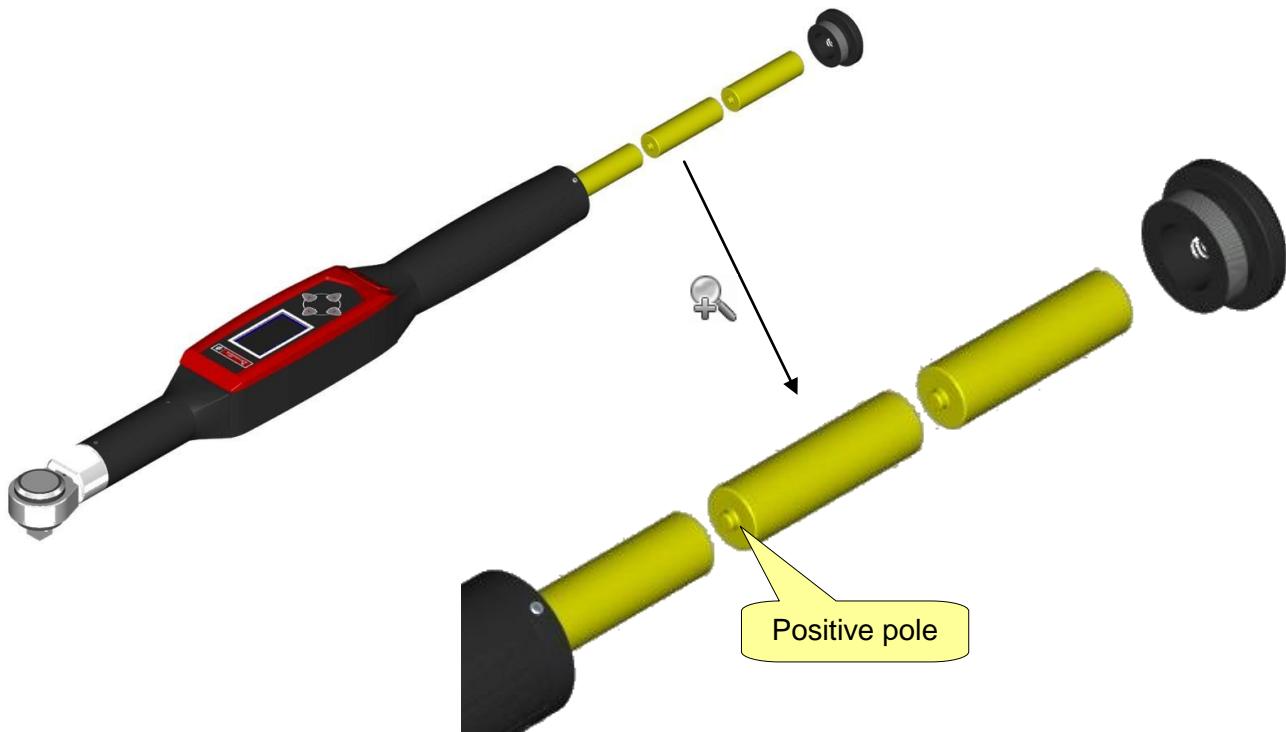
The next paragraphs describe all the DWTA components and user interfaces in detail.

For clarity, from the next chapter of this user manual it is mentioned the DWT/DWTA Vision models as "DWTA".

To start working with the DWT/DWTA Vision immediately, go to the *Getting started with DWTA* chapter.

### 2.1.2.1 Batteries

The DWT/DWTA Vision operates powered by three batteries 1.5 V AA size. Rechargeable batteries can be also used. The operating time depends from the batteries installed.

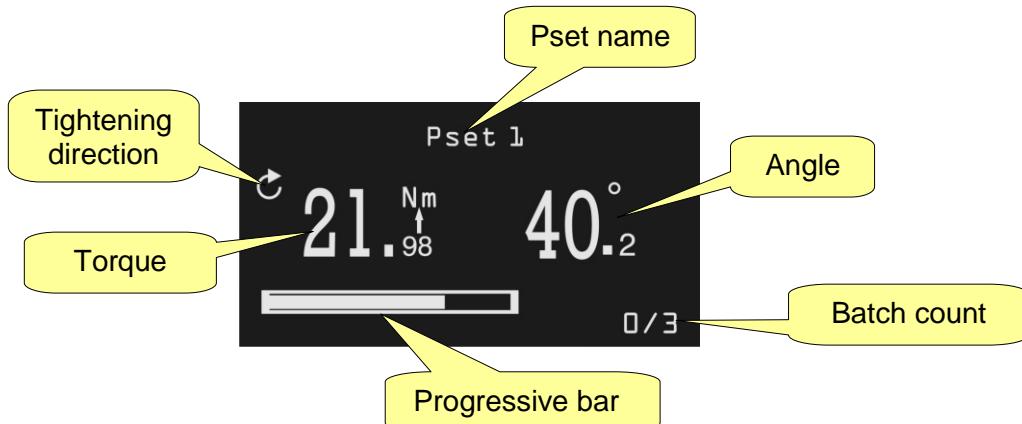


To install or replace the batteries in the DWT/DWTA Vision, turn off the device, unscrew the plug, insert the three batteries, and reinstall the plug. Pay attention to the batteries polarity: Insert the three batteries in the same polarity, as shown in the figure above.

## 3 User Interfaces

### 3.1 DISPLAY

The wrench display allows to explore the wrench menus, and monitoring torque and angle during the tightening operation:



<b>Pset name</b>	Indicates the Pset name. In the <i>Demo Mode</i> shows the test type.
<b>Tightening directions</b>	Indicates whether tightening must be done in the clockwise or counterclockwise direction.
<b>Torque/Angle</b>	Indicates the current measurements. The arrow under the measurement indicates which variable is selected as the result in the tightening strategy, when applicable.
<b>Progressive bar</b>	This bar gets filled by increasing the torque (or the angle depending from the strategy), guiding the operator to reach the target value.

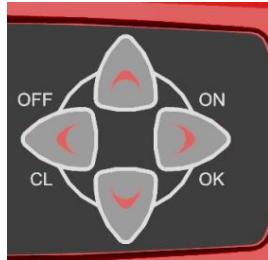
The display background color changes according to the tightening phase and result:

<b>White</b>	Default color for all the menus and settings
<b>Blue</b>	When a test is started, the display is backlight in blue.
<b>Green</b>	During the test execution, the display turns green when the result is <i>OK</i> .
<b>Red</b>	Color used to indicate error. During the test execution, the red color is used to indicate that torque and/or angle value exceeds the maximum limit.

NOTE: For better printing contrast, and for black/white printing, in this manual the display figures are always shown in black/white.

## 3.2 KEYBOARD

Use the keyboard to browse the DWTA menu:

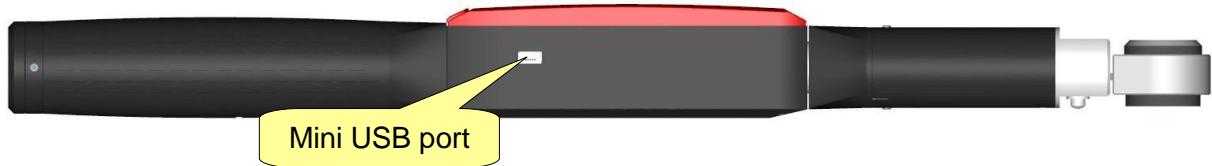


Icon	Name	Description
	ON, ENTER	Switch on the DWTA, enter menu and confirm.
	OFF, ESC	Switch off the DWTA, exit menu
	UP	Up (browse menu), increase value in settings menus.
	DOWN	Down (browse menu), decrease value in settings menus.

## 3.3 BUZZER

The DWTA features a buzzer, to provide more indications on the result of the current operation. A high tone is emitted in case of *OK* result, while a lower tone is emitted in case of test *Not OK*. For details, see the specific chapters for various tests available on the DWTA.

## 3.4 MINI USB PORT



The mini USB port is available for programming the DWTA with DeltaQC software. See the *Connecting to the DWTA* chapter for details.

It allows also firmware upgrade (reserved for Desoutter service personnel).

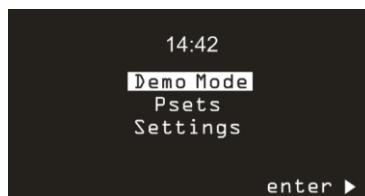
## 4 Getting started with DWTA

To turn on the DWTA press the **ON** button on the wrench keyboard; to turn it off, press the **OFF** button and hold it down for few seconds. The power on screen is shown for few seconds, followed by the zero adjustment. During zero adjustment, the firmware version is displayed in the lower part of the screen:



**NOTE:** Leave the wrench in a fixed position without applying any torque to the transducers during the power on; this permits proper automatic zero adjustment of the transducer and gyroscope. At the end of the zero adjustment process the OK is displayed to indicate the process has been completed; in case of error during the zero adjustment a message "Error Zeroing Torque" or "Error Zeroing Gyro" is shown when trying to execute a tightening. Switch off and on again the unit to execute again the zeroing.

After the power on sequence, the main menu is shown on the display:



Main menu

- **Demo Mode:** This menu accesses the free test, without the need of programming the unit with a specific tightening program. See below for details.
- **Pset:** This menu accesses the tightening programs (Pset), defined and sent to the DWTA by DeltaQC (see the chapter *Pset* for details)
- **Settings:** This menu sets the language, the date/time, and accesses the diagnostic menu.



**NOTE:** After 90 seconds of no use, the DTWA enter the power save mode, reducing the display brightness. Press any button on the keyboard to exit the power save mode.

After about 5 minutes of no use, the DTWA automatically turns off; this function is disabled while the DTWA is performing a test or it is connected to the DeltaQC

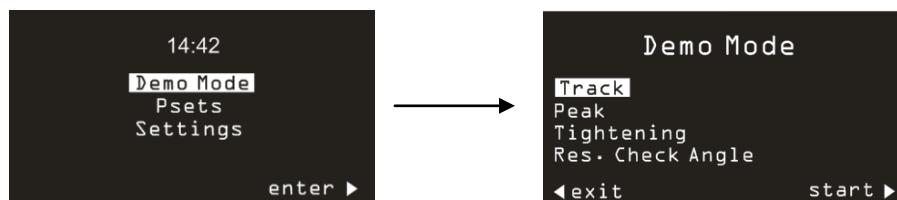
## 4.1 EXECUTING A DEMO TEST

The demo mode executes a test (tightening operation or quality control test) by simply accessing the DWTA from the keyboard, with no need to program the unit with DeltaQC.



**NOTE:** In this mode the results are not saved in the wrench memory.

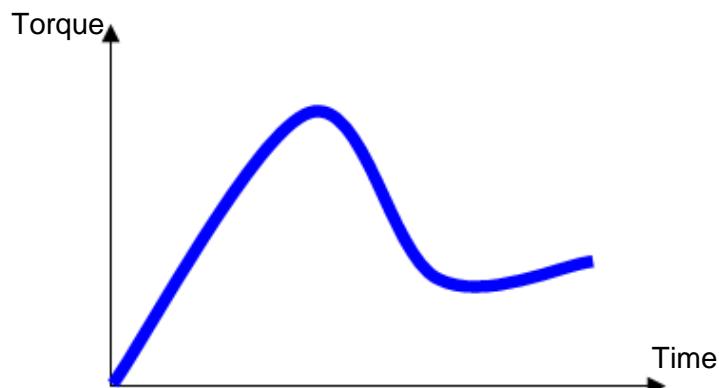
To conduct a demo test, select **Demo Mode** from the main menu:



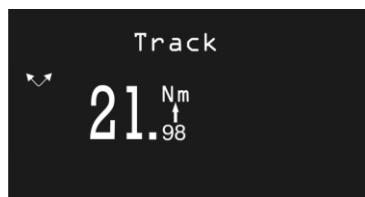
Select the desired operation and click on the **OK** button on the wrench keyboard to start the test.

### 4.1.1 Track

This mode can be used to execute a very simple tightening operation in which the operator tightens the screw at the desired torque, monitoring the torque applied on the wrench display.



In track mode, the wrench displays the applied torque in real time.

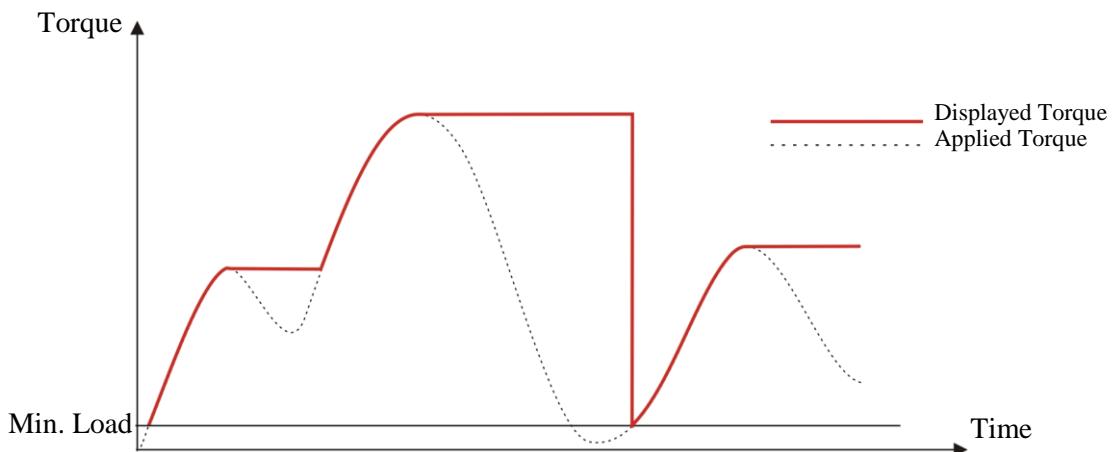


Torque can be applied in either the clockwise (positive torque) or counterclockwise (negative torque) direction.

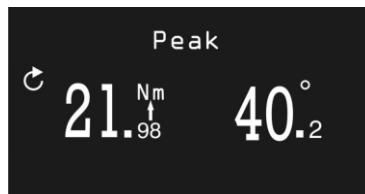
By clicking on the **OK** button on the DTWA keyboard the wrench executes a torque zero adjustment. **NOTE:** This zero adjustment is applied only for this test and not applied as a global zero reference for the DWTA.

## 4.1.2 Peak

Like track mode, this mode can be used to perform a very simple tightening operation in which the operator tightens the screw at the desired torque, monitoring the torque applied on the wrench display. In peak mode, the maximum value reached during tightening remains frozen on the wrench display.



The wrench displays torque and angle in real time, starting from the *Min. Load* value, and the peak value (measured on the torque) is frozen on the display.



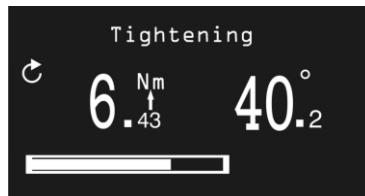
A new cycle starts when the applied torque is released, and applied again over the *Min. Load* of the wrench (5% of the wrench capacity). The angle calculation is reset when a new cycle is started. By clicking on the **OK** button on the DWTA keyboard the torque and angle values are reset. The torque must be applied in the clockwise direction.

### 4.1.3 Tightening

This mode executes a tightening operation to the given torque.



Set the desired target torque value by clicking on the **UP** and **DOWN** arrows on the DWTA keyboard and click the **OK** button to confirm and execute the tightening.



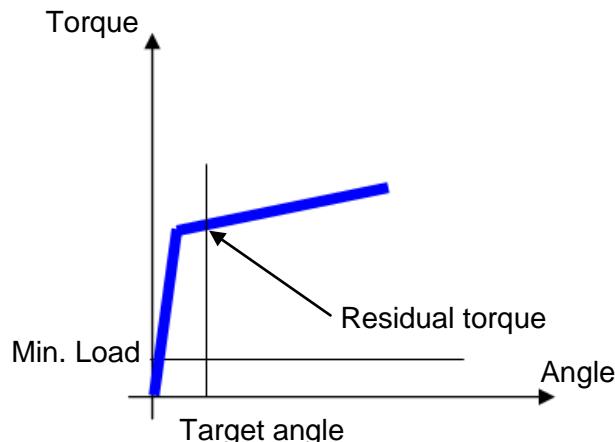
The current torque and angle values are displayed, starting from the *Min. Load* value. Torque must be applied in the clockwise direction.

The progress bar guides the operator to reach the target value. The display is colored in blue, turns green when the target value is reached (within 5% of the specified value), and turns red if going higher.

The buzzer starts emitting a signal at the 30% of the target value, and increases it again at the 60% and then at the 95% of the target value. If the torque goes over the 105% of the target value, the display turns red and the buzzer produces a tone repeated at high frequency.

#### 4.1.4 Residual check angle

This test evaluates the residual torque on a bolt, measuring the torque needed to rotate further the bolt. To achieve that, the residual torque is measured as the torque at the specified target angle. The target angle is typically set to few degrees.



Enter the target angle, then simply apply the torque on the bolt and increase it until it starts moving to reach the target angle. The analysis starts when the applied torque goes over the *Min. Load* value.



The DWTA displays the torque applied in real time, and freezes the residual torque value when the target angle is reached.

The display is colored in blue, and turns green when the target angle is reached; if not, it turns red.

The buzzer emits a high tone when the target angle is reached, a low tone otherwise.

## 5 Working with DeltaQC software



DeltaQC is a PC software package developed to manage the DWTA. It offers easy user-friendly programming and real time monitoring of the instrument. DeltaQC serves as an interface between the user and the DWTA. With DeltaQC, users can configure the DWTA, and receives the results and traces.

The main features are:

- Tools and Psets definition
- Review of results from the DWTA
- Review of traces from the DWTA
- Settings of the DWTA

The software saves all of your tightening programs, results and traces in a local database.

## 5.1 SOFTWARE INSTALLATION



**NOTE:** Installation requires PC administrator rights. Running the software also requires administrator rights (or the PC administrator password is needed to launch the software).



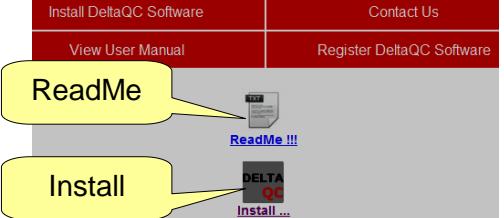
**NOTE:** Do not install the software from a shared folder/drive. Install the software from the supplied CD; if the CD content is copied into a PC folder, it must be a PC local folder.



**NOTE:** After installing the DeltaQC software, install also the SQL Server 2005 express edition, service pack 3. Installation file is provided with the DeltaQC. See below for installation details.

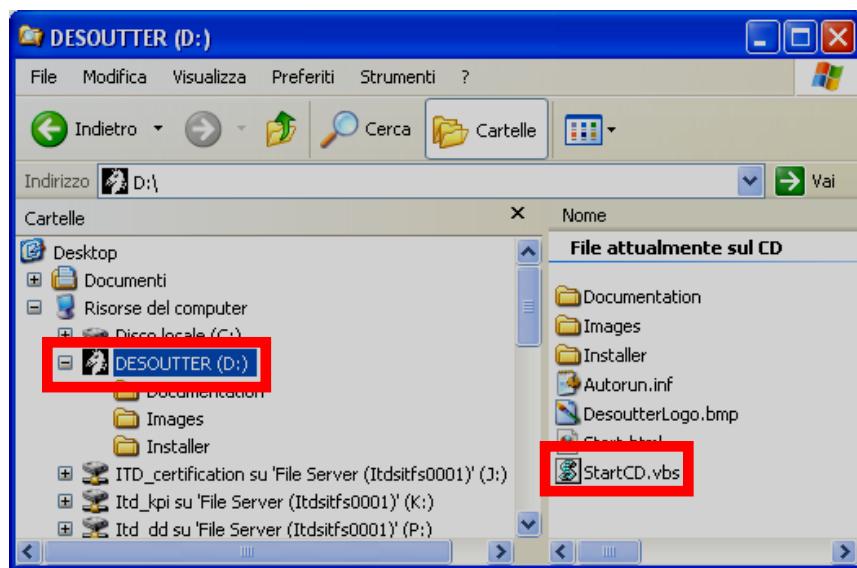
To install the software, insert the CD in the PC and wait for the following window:



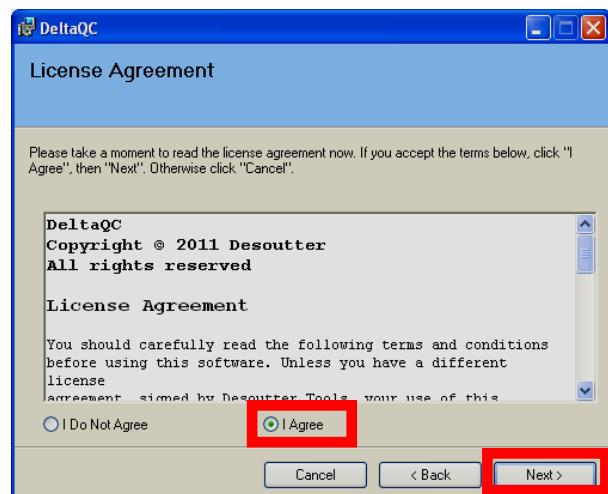
<p><b>Install DeltaQC Software</b></p>	 <p>Click and read the <b>ReadMe</b> file first, containing information about the installation. Click then on <b>Install</b> to start the installation wizard for the DeltaQC.</p>
--	--

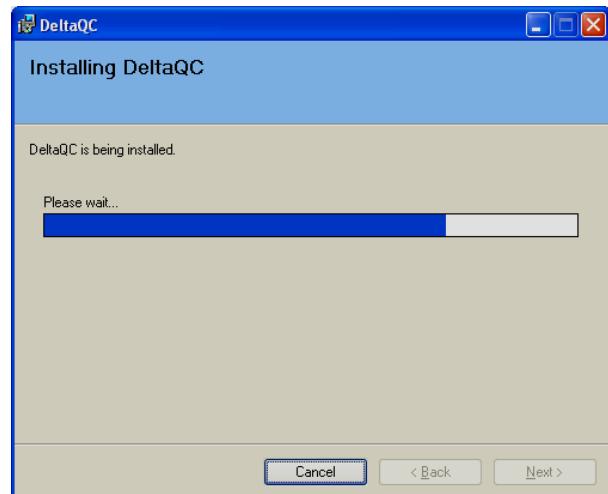
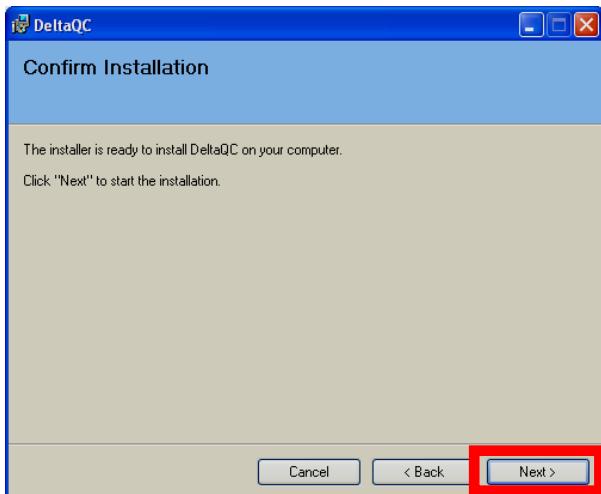
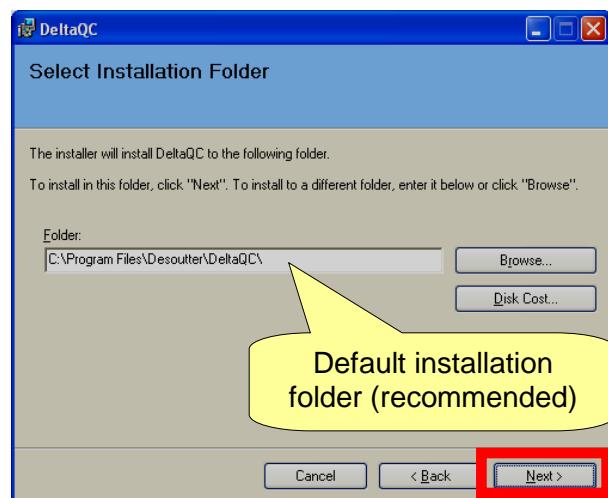
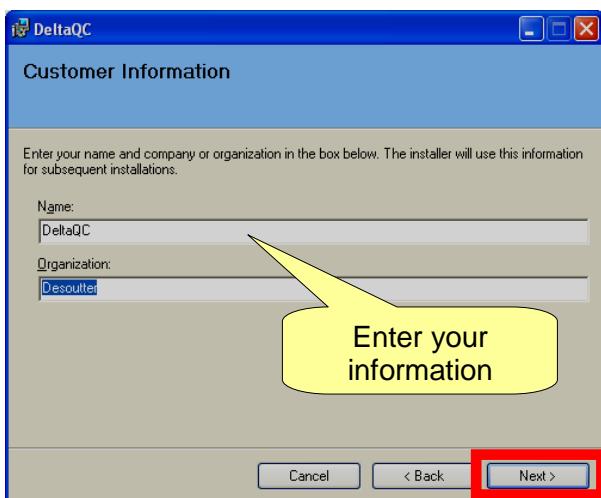
	<table border="1"><tr><td>Install DeltaQC Software</td><td>Contact Us</td></tr><tr><td>View User Manual</td><td>Register DeltaQC Software</td></tr><tr><td colspan="2"> <a href="#">Delta User Manual</a>  <a href="#">DWTA User Manual</a></td></tr></table>	Install DeltaQC Software	Contact Us	View User Manual	Register DeltaQC Software	 <a href="#">Delta User Manual</a>  <a href="#">DWTA User Manual</a>	
Install DeltaQC Software	Contact Us						
View User Manual	Register DeltaQC Software						
 <a href="#">Delta User Manual</a>  <a href="#">DWTA User Manual</a>							
<b>View User Manual</b>	Open the DeltaQC User Manual in PDF.						
<b>Contact US</b>	<table border="1"><tr><td>Install DeltaQC Software</td><td>Contact Us</td></tr><tr><td>View User Manual</td><td>Register DeltaQC Software</td></tr><tr><td colspan="2"><p>Georges Renault S.A.S. ZAC de la Lorie 38, Rue Bobby Sands BP 10273 44818 Saint Herblain - FRANCE Tel : +33 (0)2 40 808 909 Fax : +33 (0)2 33 27 07 <a href="http://www.desouttertools.com">www.desouttertools.com</a></p></td></tr></table>	Install DeltaQC Software	Contact Us	View User Manual	Register DeltaQC Software	<p>Georges Renault S.A.S. ZAC de la Lorie 38, Rue Bobby Sands BP 10273 44818 Saint Herblain - FRANCE Tel : +33 (0)2 40 808 909 Fax : +33 (0)2 33 27 07 <a href="http://www.desouttertools.com">www.desouttertools.com</a></p>	
Install DeltaQC Software	Contact Us						
View User Manual	Register DeltaQC Software						
<p>Georges Renault S.A.S. ZAC de la Lorie 38, Rue Bobby Sands BP 10273 44818 Saint Herblain - FRANCE Tel : +33 (0)2 40 808 909 Fax : +33 (0)2 33 27 07 <a href="http://www.desouttertools.com">www.desouttertools.com</a></p>							
<b>Register DeltaQC Software</b>	<table border="1"><tr><td>Install DeltaQC Software</td><td>Contact Us</td></tr><tr><td>View User Manual</td><td>Register DeltaQC Software</td></tr><tr><td colspan="2"><a href="https://licensing.desouttertools.com">https://licensing.desouttertools.com</a></td></tr></table> <p>Provide the link to register the DeltaQC. Registration must be done after the installation. See the end of this chapter for registration details.</p>	Install DeltaQC Software	Contact Us	View User Manual	Register DeltaQC Software	<a href="https://licensing.desouttertools.com">https://licensing.desouttertools.com</a>	
Install DeltaQC Software	Contact Us						
View User Manual	Register DeltaQC Software						
<a href="https://licensing.desouttertools.com">https://licensing.desouttertools.com</a>							

If the window shown above is not started automatically, explore the CD and select **StartCD.vbs**:

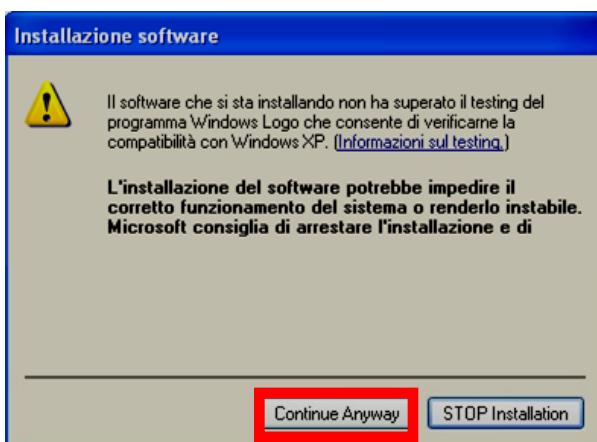


Follow the installation steps described below:

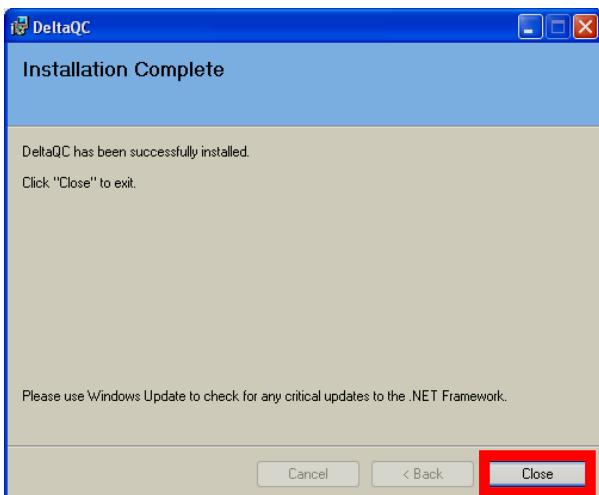
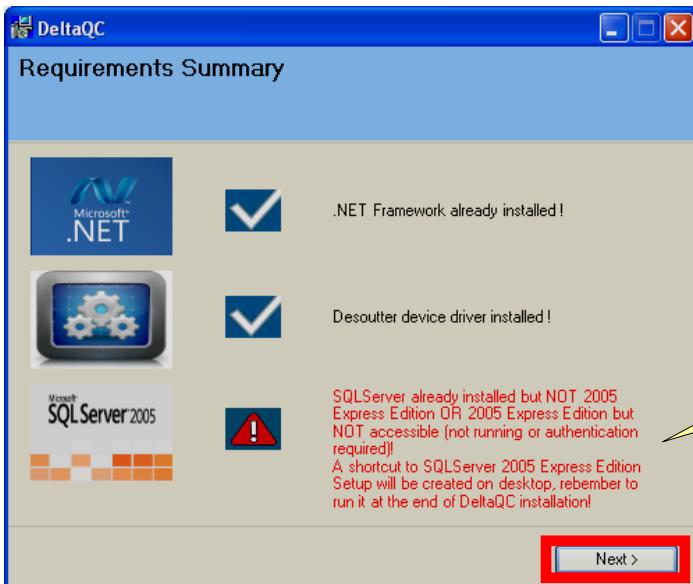




If the next message is shown during the installation, click on **Continue Anyway**:



If SQL Server 2005 is not present in the PC, the following window alerts the user that it needs to be installed; in this case a shortcut to the SQL Server 2005 installation is created automatically on the desktop of the PC.



Turn on the DWTA and wait until initialization has finished and the main menu appears on the display. Connect the DWTA to the PC through the USB cable and the new hardware setup wizard is shown:

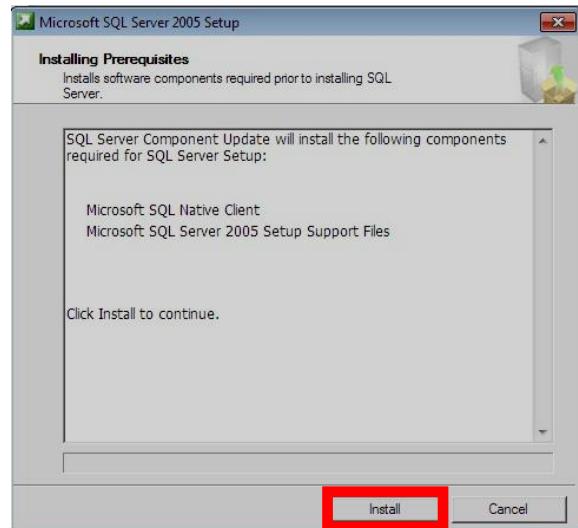
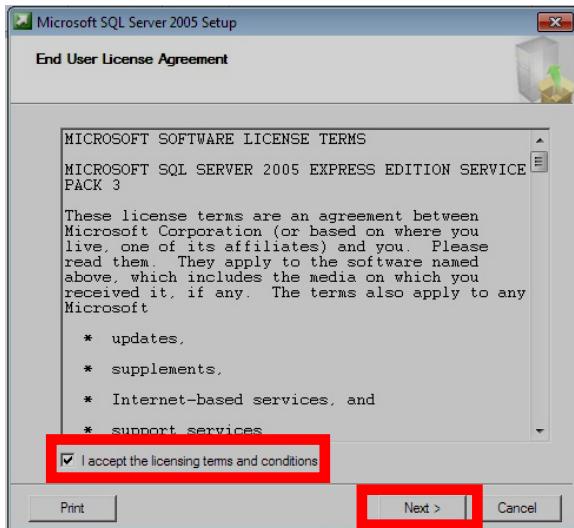


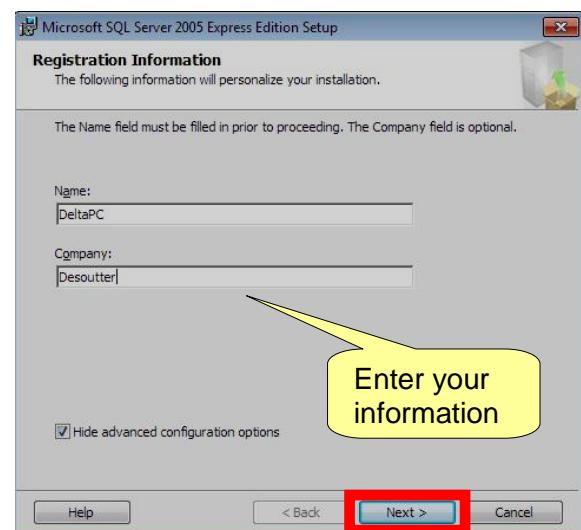
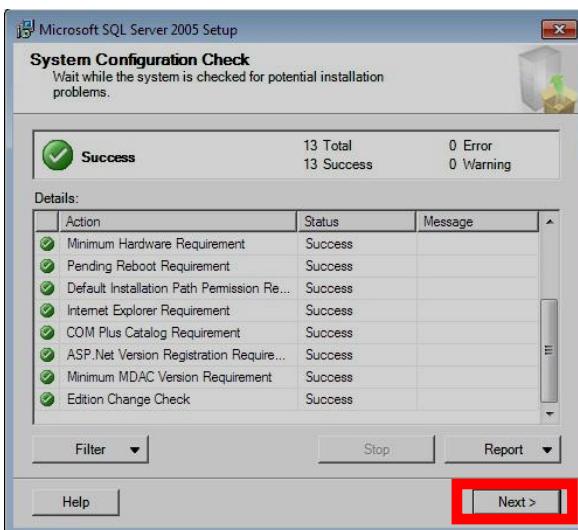
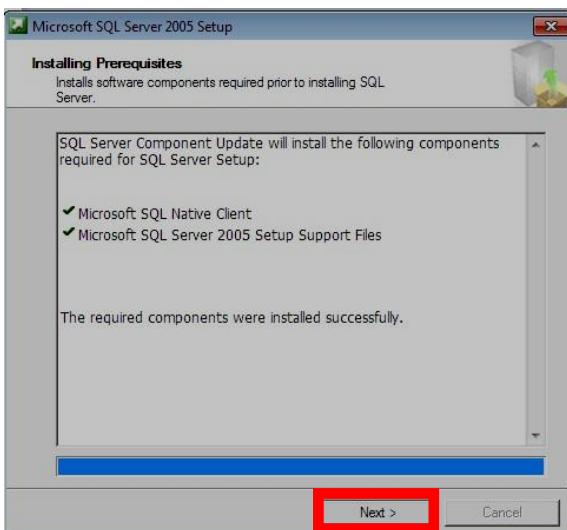


The installation of the DeltaQC provides also the SQL Server installation file. Even if the PC where the DeltaQC is installed already has SQL Server, it is recommended to install the version included with the DeltaQC installation package.

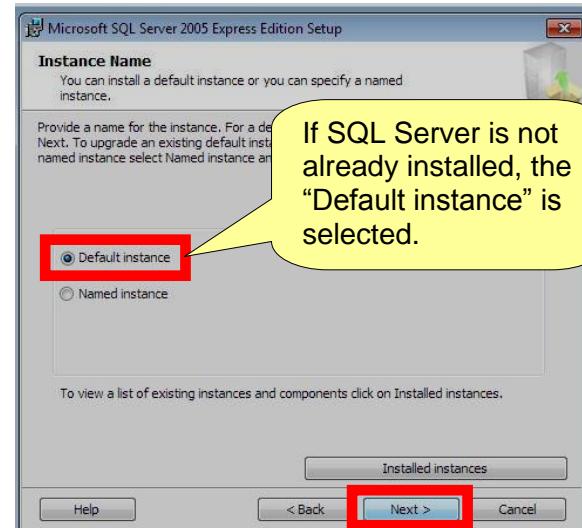
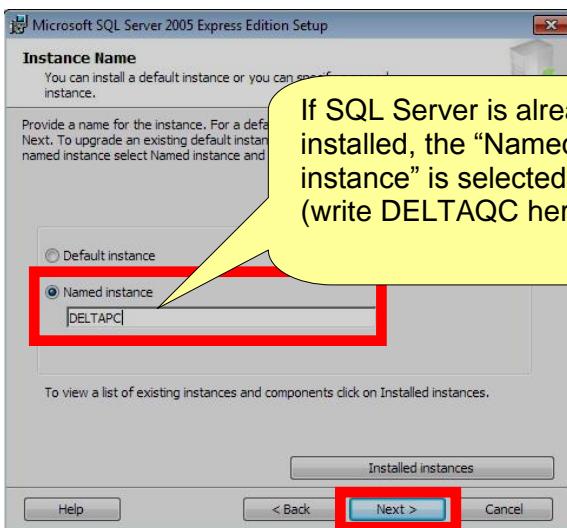


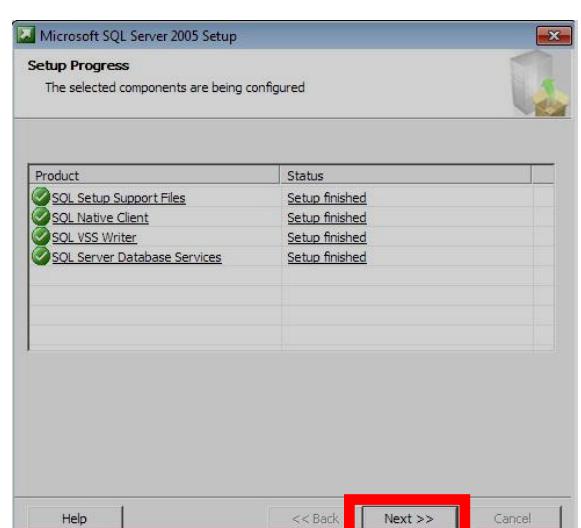
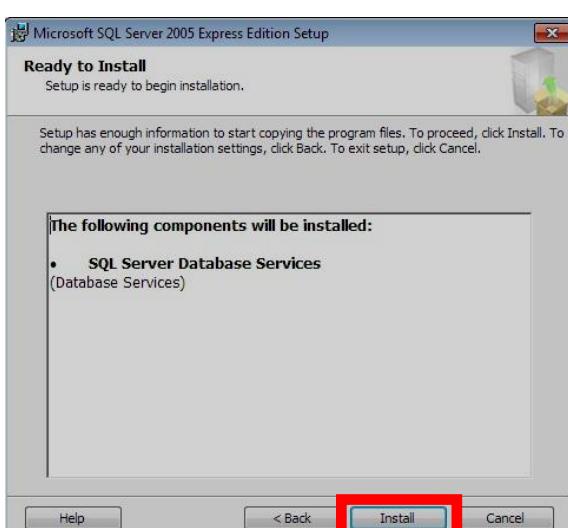
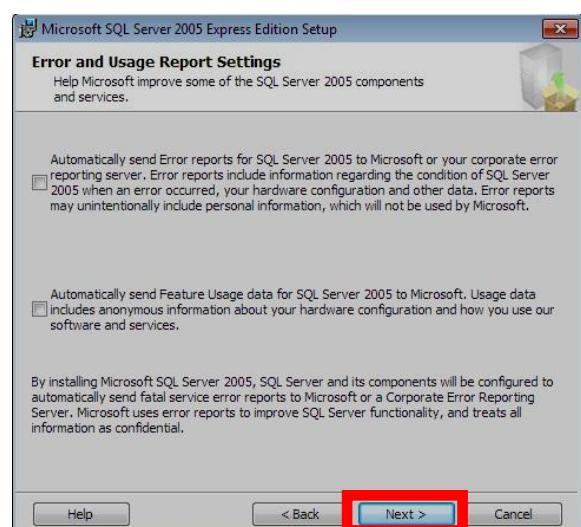
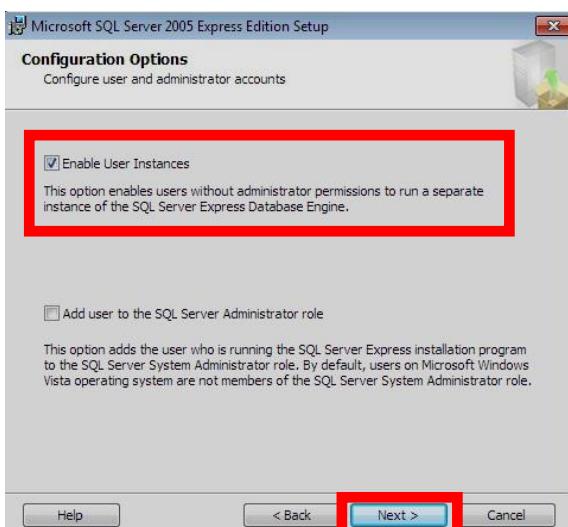
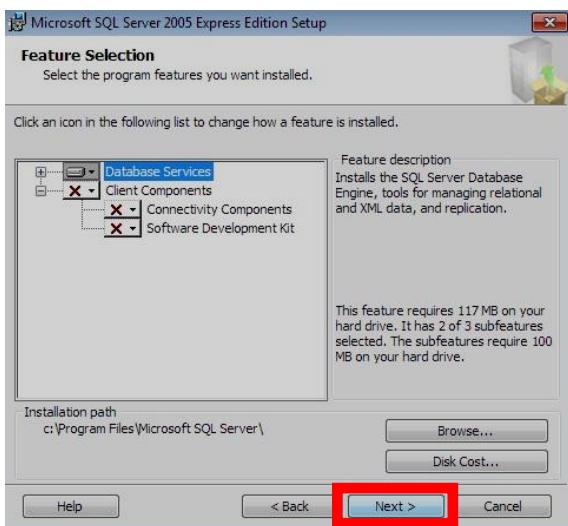
To install SQL Server 2005 double-click on the shortcut created by the installation wizard, and follow the setup procedure:

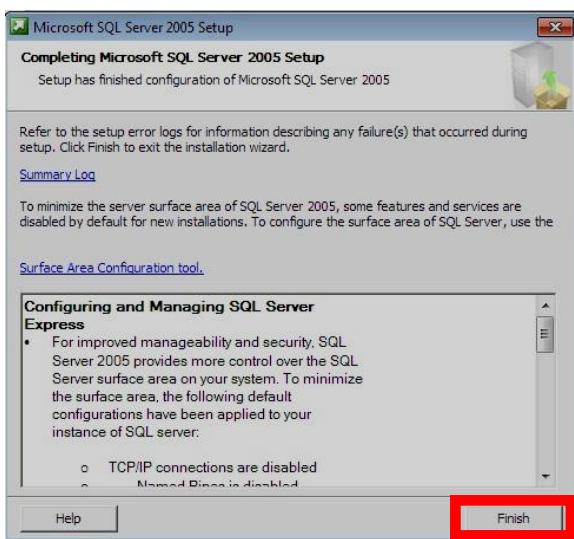




The next window changes if the SQL Server is already installed or not on the PC. The installation process automatically selects the correct option (in the first case, just rename the instance as shown in the next figure):

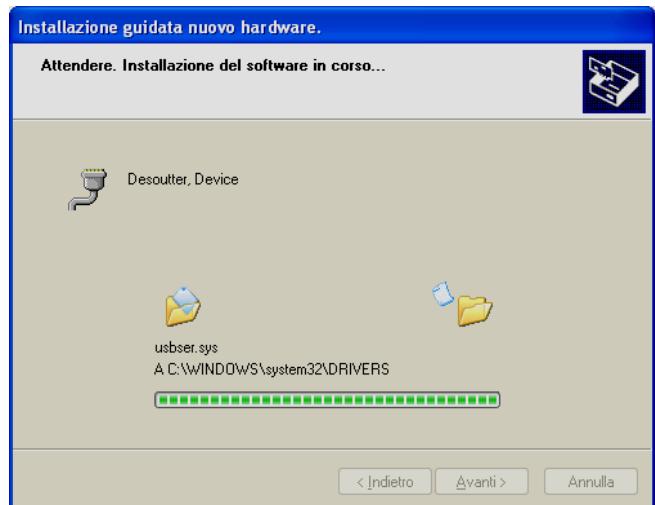






After installation, the program is added to the **Start → Program → Desoutter → DeltaQC** menu (a desktop icon is created as well).

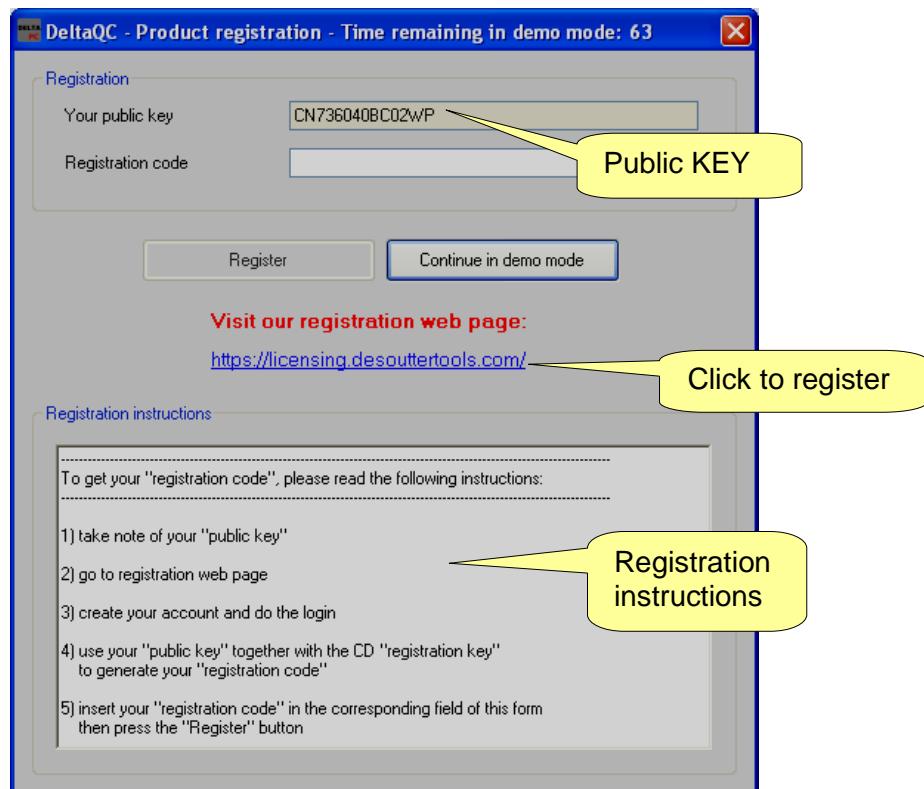
After installing the software you need to register it (see the next paragraph of this chapter for details). The first time the DWTA is connected to the PC, the following windows are shown. Follow the steps as shown:





### 5.1.1 Software registration

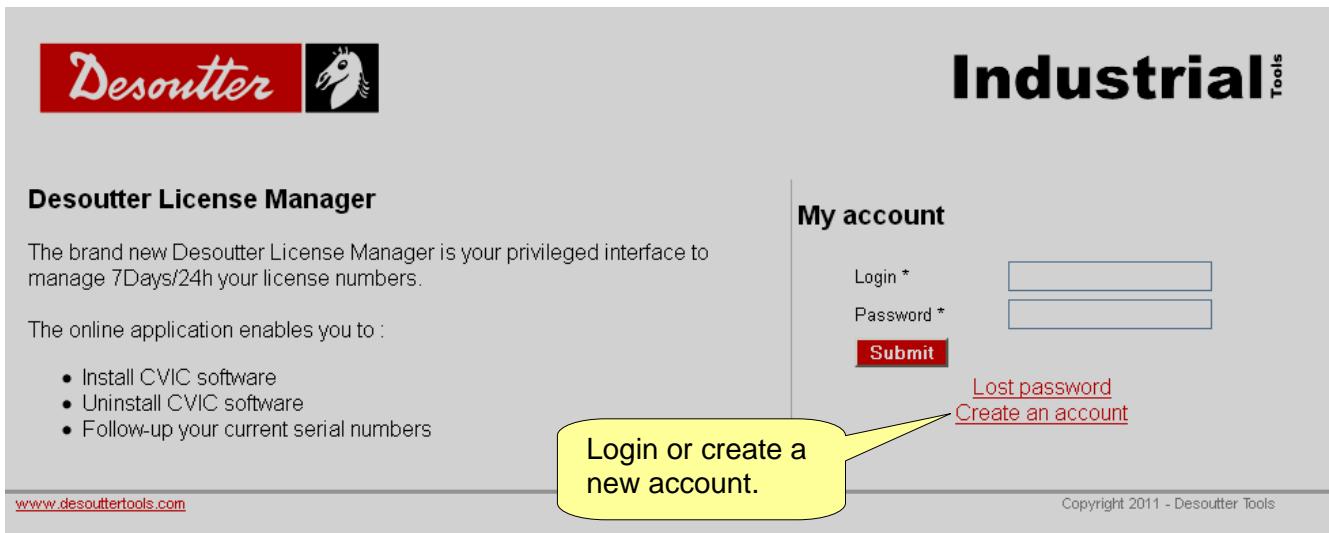
The first time the software is executed, the following window is shown:



Click on **Continue in demo mode** to skip the registration and working in demo mode (the registration can be done at a later time).

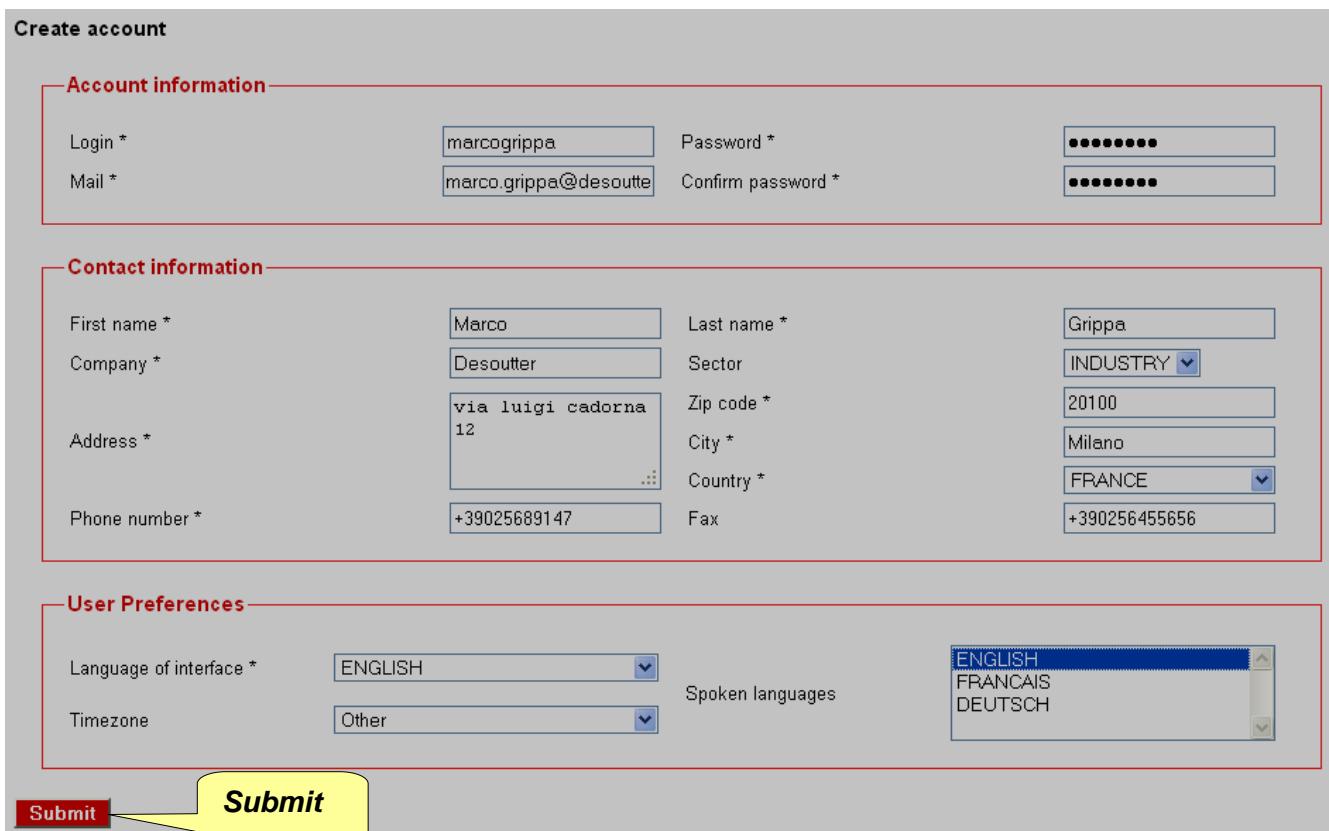
To proceed with the registration, take note of the **Public KEY** given in the form above, and click on the link <http://licensing.desouttertools.com>

The following window is shown:



The screenshot shows the Desoutter License Manager login page. At the top, there is a red banner with the text "Desoutter" and a horse logo. To the right, the word "Industrial" is followed by "Tools" in smaller text. Below the banner, the title "Desoutter License Manager" is displayed. A text block explains that the application is a privileged interface to manage 7Days/24h license numbers. It lists three functions: installing CVIC software, uninstalling CVIC software, and following up current serial numbers. At the bottom left is the URL "www.desouttertools.com" and at the bottom right is the copyright notice "Copyright 2011 - Desoutter Tools". On the right side, there is a "My account" section with fields for "Login \*" and "Password \*". A "Submit" button is below these fields. To the right of the "Submit" button are links for "Lost password" and "Create an account". A yellow speech bubble points to the "Create an account" link with the text "Login or create a new account.".

If not already created, create a new account:



The screenshot shows the "Create account" form. It is divided into three sections: "Account information", "Contact information", and "User Preferences".

- Account information:** Fields for "Login \*" (marcogrippa), "Mail \*" (marco.grippa@desoutte), "Password \*", and "Confirm password \*".
- Contact information:** Fields for "First name \*" (Marco), "Last name \*" (Grippa), "Company \*" (Desoutter), "Sector" (INDUSTRY), "Address \*" (via luigi cadorna 12), "Zip code \*" (20100), "City \*" (Milano), "Country \*" (FRANCE), "Phone number \*" (+39025689147), and "Fax" (+390256455656).
- User Preferences:** Fields for "Language of interface \*" (ENGLISH), "Timezone" (Other), and "Spoken languages" (a dropdown menu showing ENGLISH, FRANCAIS, and DEUTSCH). A yellow speech bubble points to the "Submit" button.

Enter your information and click on **Submit**. A confirmation message is shown:

EN

6159937790

Issue no. 01

Desoutter 

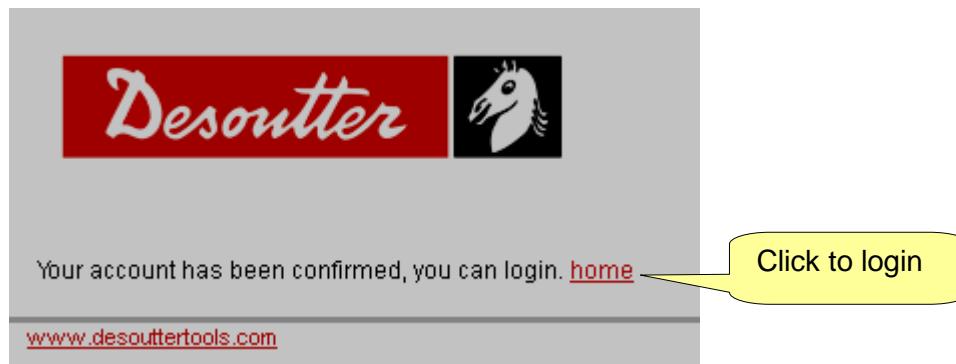
Industrial 

An email has been sent, check your mail and follow the instructions. If you don't receive mail, please contact us !

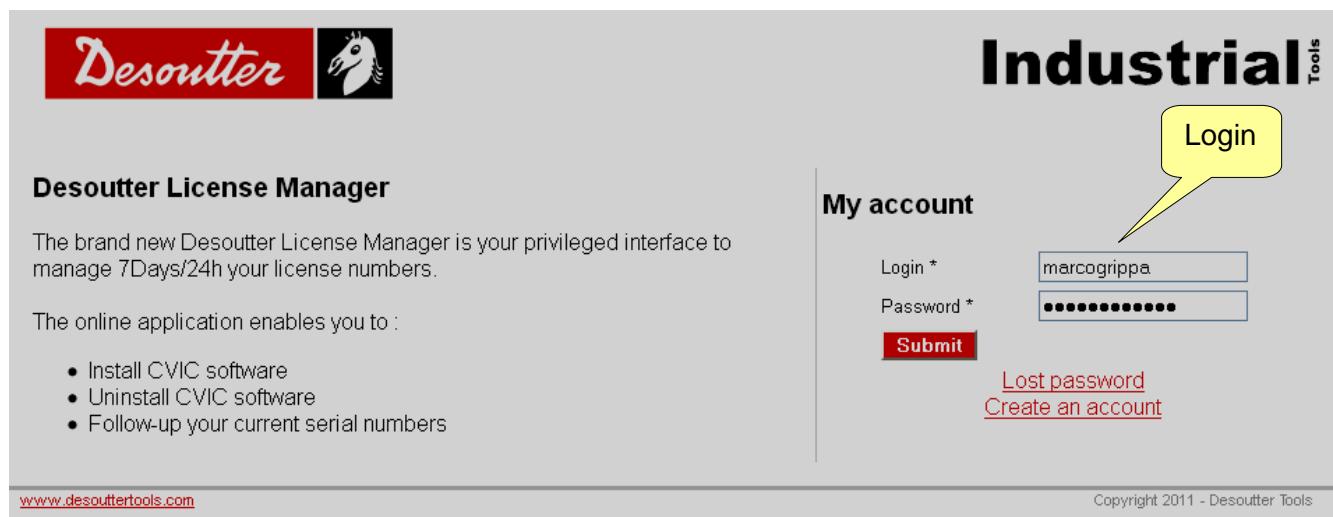
[www.desouttertools.com](http://www.desouttertools.com)

Copyright 2011 - Desoutter Tools

On the email address given in the account above, a link is sent. Click on the link provided.



Click on **Home** and it is possible now to login:



On the following window, select **License Management** (from the same window is also possible to edit the profile information or to open the Desoutter contact form):

Welcome Marco Grippa **LICENSE MANAGEMENT** My profile Contact Form Disconnection

**Desoutter License Manager**  
The brand new Desoutter License Manager interface to manage your software licenses 24h/24h/7 days/7 days  
The online application enables you to:

- Install CVIC software
- Uninstall CVIC software
- Follow-up your current serial numbers

[www.desouttertools.com](http://www.desouttertools.com) Copyright 2011 - Desoutter Tools

Enter the **Serial number** and the **Key** provided on the installation CD:

Welcome Marco Grippa **LICENSE MANAGEMENT** My profile Contact Form Disconnection

**License management**

Add a new license

Serial number: 12000026530  
License number: MICH-PAPR-1256-8UGM-LCNJ-SLRQ

**Submit**

Serial number written on the CD  
Key written on the CD

Click on **Submit** and the following window is shown:

Welcome Marco Grippa **LICENSE MANAGEMENT** My profile Contact Form Disconnection

**License management**

Add a new license

Serial number:   
License number:

**Submit**

Manage existing licenses

Type	Serial number	License Number	PC name	User	Install date	Installs remaining:
6159276530	12000026530	4FA4-UUVZ-8SR-JCF1-DHU9-Q4LZ-3177-7HU2				1

**Add** **Installs remaining: 1** **Add** **Delete**

Click on **Add** to proceed with the registration (or on **Delete** to delete the serial number and key already entered):

**Software install**

**License card**

**License type**

Part number 6159276530  
Software designation DeltaQC Adv 1 user  
Installs 1

**License**

Serial number 12000026530  
License Number 4FA4-UUVZ-I8SR-JCF1-DHU9-Q4LZ-3177-7HU2  
Date manufacturing 02-08-2012 10:39:21  
Installs remaining 1  
Features

**Software install**

Public key \*  PC name \*  **Submit**

Enter the **Public key** generated by the DeltaQC registration form and the **PC name** (choose any name) and click on **Submit** to get the registration code:

**Software install**

**License card**

**License type**

Part number 6159276530  
Software designation DeltaQC Adv 1 user  
Installs 1

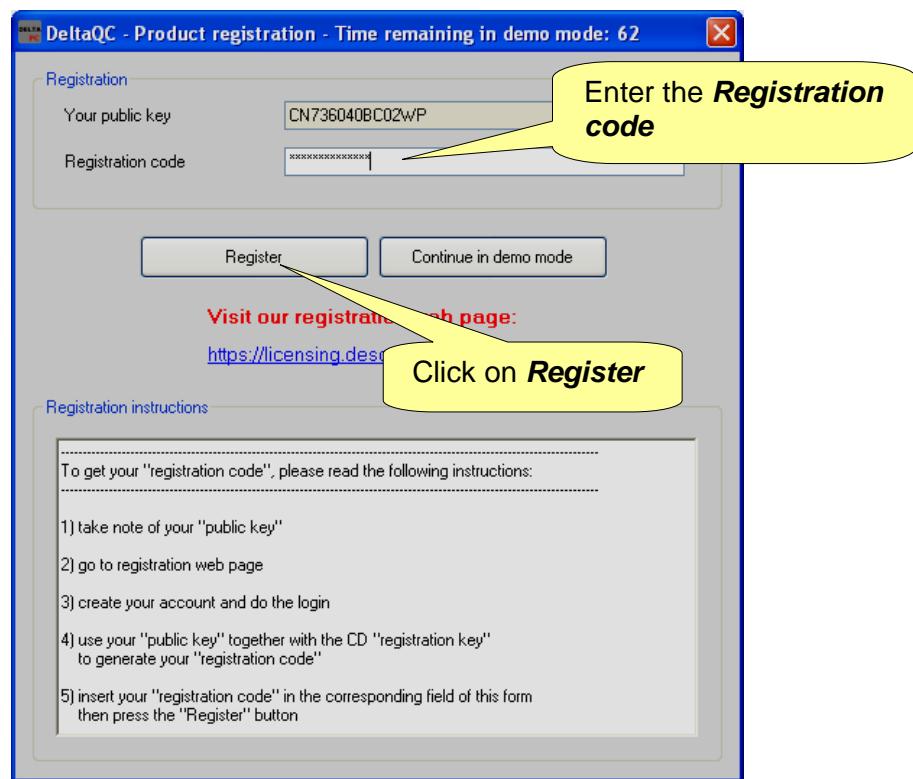
**License**

Serial number 12000026530  
License Number 4FA4-UUVZ-I8SR-JCF1-DHU9-Q4LZ-3177-7HU2  
Date manufacturing 02-08-2012 10:39:21  
Installs remaining 0  
Features

**Install**

User Marco Grippa +39025689147  
Public key CN736040BC02WP  
Registration code **8ZBDEHYD5RQGC**  
Install date 2012-02-08 10:47:21

Copy the registration code in the DeltaQC registration form and click on Register to complete the registration:



Enter the code and click to **Register** to complete the registration.

### 5.1.2 DeltaQC *Evaluation* version

If the software is not registered after the installation, it works as *Evaluation* for 90 days; the *Evaluation* version provides all of the functionality of the registered version. When the trial period expires the software turns into *Free* version.

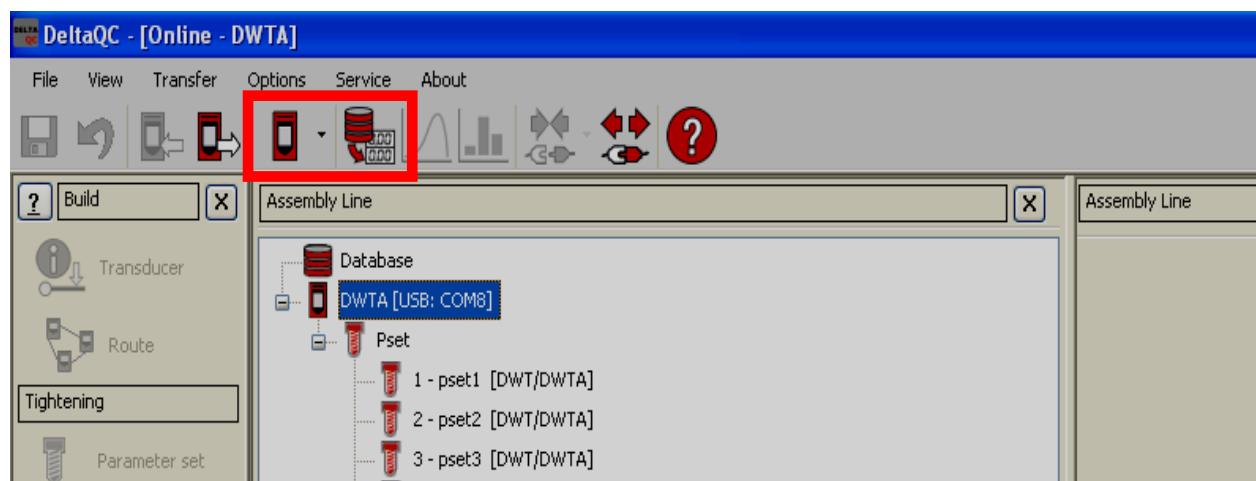
The number of days remaining for the trial period is shown in the bottom part of the software:



### 5.1.3 DeltaQC Free version

When the trial period expires the software turns from “demo” into “free” version.

The free version has a limited set of function: It is possible only to define tightening programs (Pset) review the results from the DWTA and perform the settings of the instrument; all the other features are not available.



### 5.1.4 DeltaQC Licensed and Advanced versions

It is possible to register the software in two different versions: *Licensed* or *Advanced*.

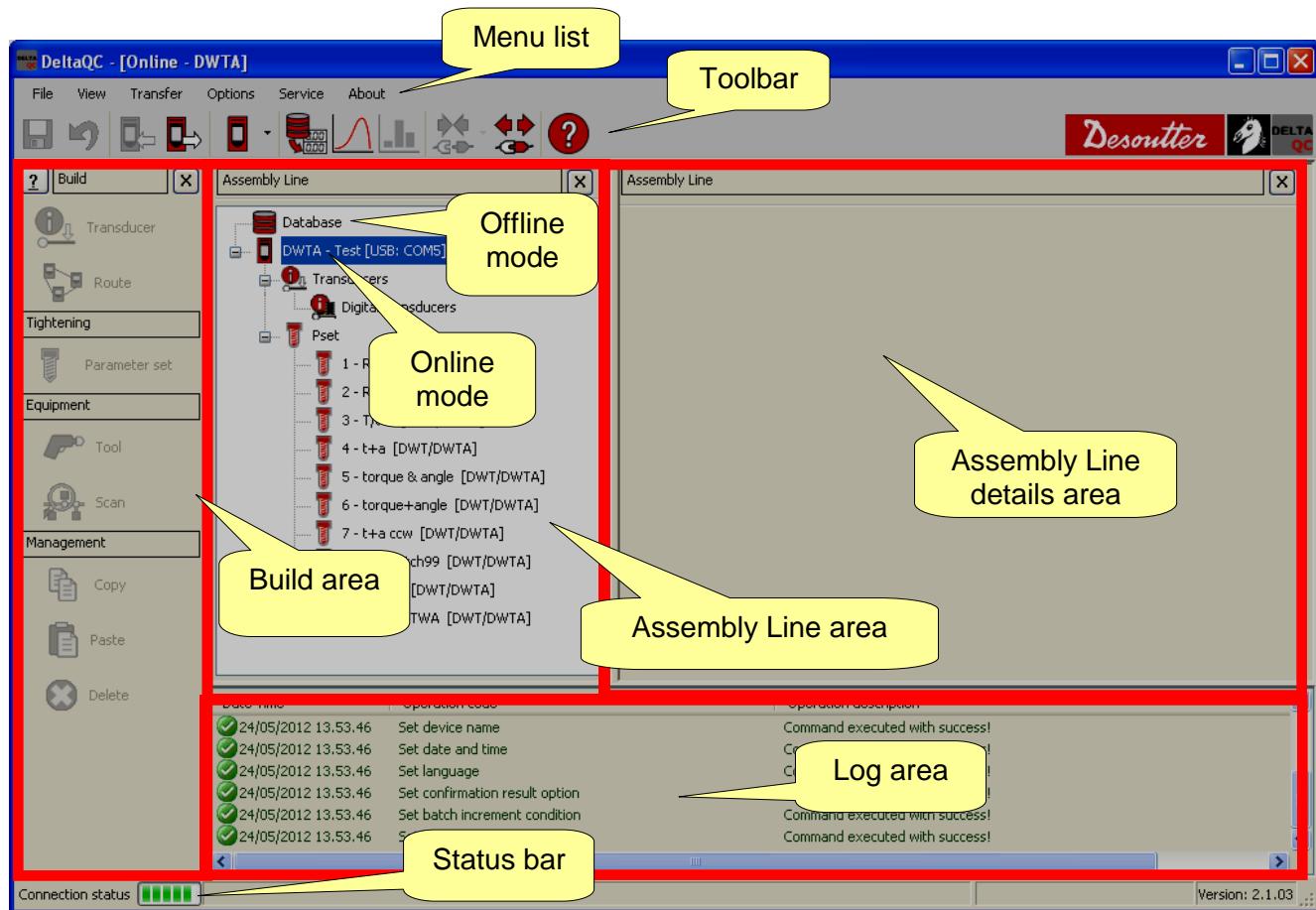
The *Advanced* version, compared to the *Licensed* version, can save the results and traces on the database; on the *Licensed* versions the results and traces can be viewed online only when the software is connected to the DWTA.

## 5.2 DELTAQC OVERVIEW



Click on the DeltaQC icon to launch the software.

The main menu is shown:



**NOTE:** The DeltaQC adapts automatically to the DWTA type and firmware version; therefore, some menus or commands may be hidden or disabled, if not supported by your version of the DWTA.

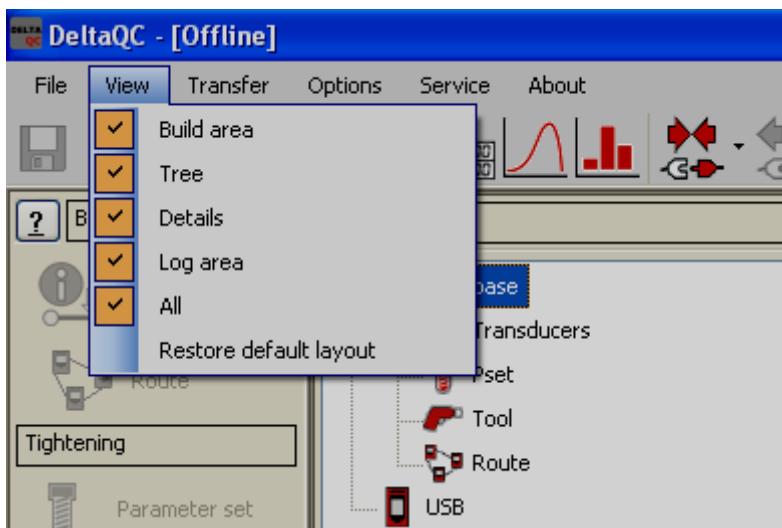
Working in the DWTA Map area, all the data are directly written in the unit connected.

Working offline, it is possible to define the test programs and transfer them to the unit(s) at a later time. The DeltaQC stores in a local database the following data:

- Test programs (Psets)
- Tools
- Test results
- Test traces

For details of the offline mode, see the *Offline mode* chapter.

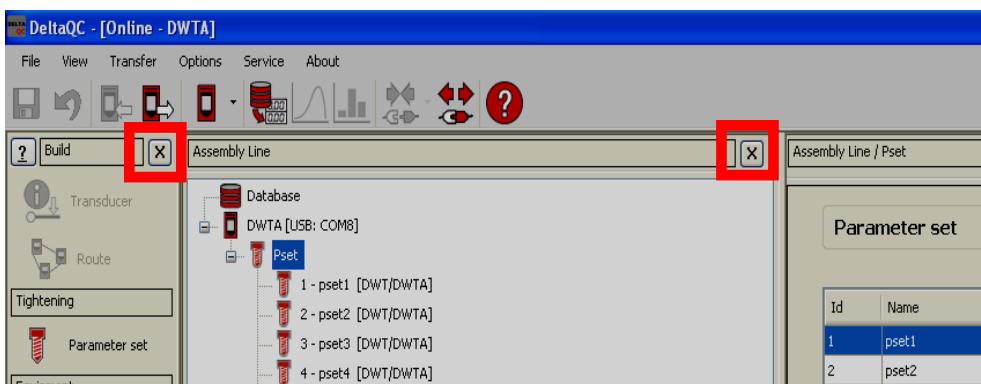
The items shown in the main menu can be customized; select **View** to define which items enable or disable:



The possible following are:

<b>Build area</b>	Enable/disable the <i>Build area</i> . The build area contains the commands to create tightening and test programs, tools, route of test.
<b>Tree</b>	Enable/disable the <i>Assembly line</i> area, which contains the list of the tightening programs and tools created online or offline.
<b>Details</b>	Enable/disable the <i>Assembly line details</i> area, which details the items selected in the <i>Assembly line</i> area.
<b>Log area</b>	Enable/disable the <i>Log area</i> , which lists the list of the log messages.
<b>All</b>	Enable/disable all the possible items in the main menu.
<b>Restore default layout</b>	Restore the default layout, which enables all of the items except the <i>Log area</i> .

To hide one item directly from the main menu, click on the icon:



## 5.2.1 Menu list

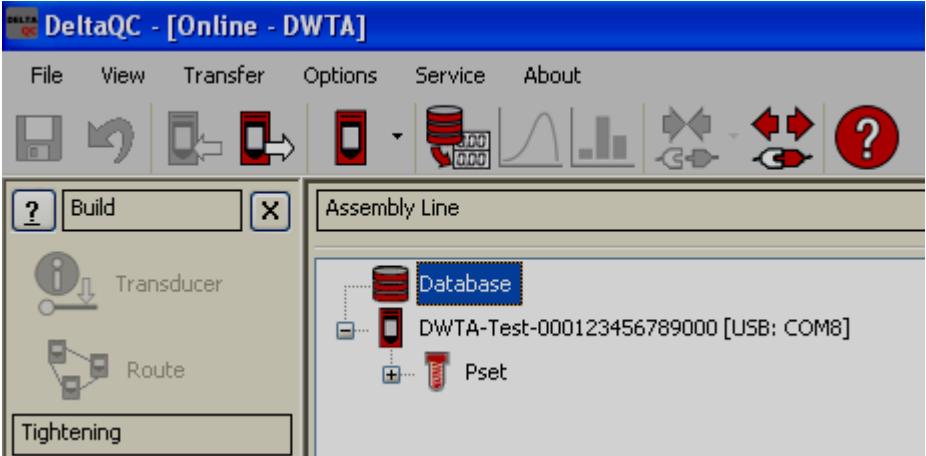
The following options are available in the DeltaQC Menu list:

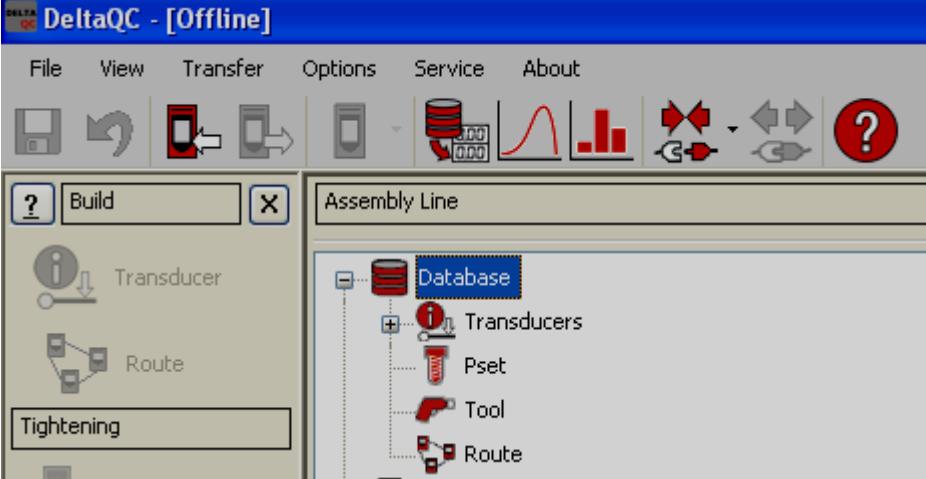
Illustration	Name	Description
	File	Program exit.
	View	Select the areas to show/hide in the main menu
	Transfer	This menu allows to set the DeltaQC language and enable/disable the log file.
	Options	This menu allows to set the DeltaQC language and enable/disable the log file. The list of available devices is not applicable to the DWTA products.
	Service	Menu to register the software.
	About	Software information, including registration details.

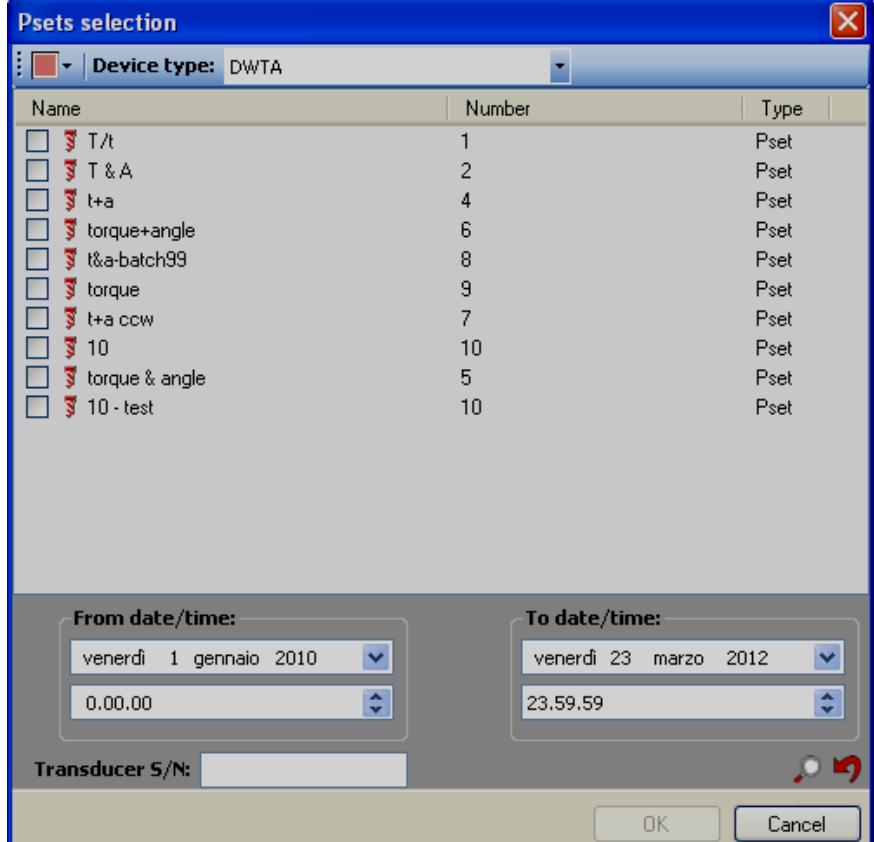
## 5.2.2 Toolbar

The toolbar icons are shortcuts to the basic functions in DeltaQC.

Icon	Icon name	Description
	Save	Save the item (for example Pset or Tool) that you are defining in the <i>Assembly Line</i> area.
	Undo	Undo the operations done on the item (for example Pset or Tool) that you are defining in the <i>Assembly Line</i> area.

Icon	Icon name	Description
	Transfer PC → Device	Transfer the data defined offline to the DWTA connected to the PC.
	Transfer Device → PC	Transfer the data defined online on the DWTA to the PC.
	Controller	<p>Click on the arrow of this icon to open the Controller programming menu.</p> <p>Controller contains information and settings for DWTA.</p> <p>See the <i>DWTA Settings</i> chapter for more information.</p>
	Results Viewer	<p>This icon opens the Results Viewer page.</p> <p>See the <i>Results viewer</i></p> <p>The <b>Results viewer</b> function permits to retrieve the results from the DWTA or from the database.</p> <p>The DWTA can store up to 5000 results; when the memory is full the new results overwrite the oldest results stored.</p> <p>To view the results stored on the DWTA, connect the instrument to the DeltaQC and select the result viewer:</p>  <p>To view the results downloaded from the DWTA and stored in the database, work in offline mode:</p>

Icon	Icon name	Description
		 <p>When clicking on the <b>Result Viewer</b> icon, the following window is shown:</p>

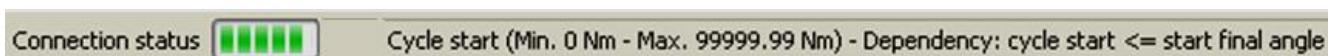
Icon	Icon name	Description
		 <p>Select what you wish to review and click on <b>OK</b>. The following window is shown:</p>  <p>Click on a column to sort the results according to the column name.</p>

Icon	Icon name	Description																				
		<p>All of the information related to the tightening operation is displayed in the various columns.</p> <p>If an item has been deleted after the test execution, the related rows with the results are marked as “deleted” (as shown in the first 2 rows of the figure above).</p> <p>Here are the most important fields:</p> <table border="1"> <tr> <td><b>Pset number</b></td><td>The Pset number as defined in the Pset d</td></tr> <tr> <td><b>Status</b></td><td>This is the global status of the test. It is <b>OK</b> if the torque has been detected according to the thresholds and if the torque does not exceed the maximum torque allowed. If the torque goes over the maximum torque allowed, the status is <b>OVERLOAD</b>.</td></tr> <tr> <td><b>Torque Status</b></td><td> <p>These fields indicate the result for the torque. If the torque is within the torque limits, the status is <b>OK</b>. If the <i>Check Type</i> in the Pset parameters is <i>Angle</i>, the torque status is marked as <b>OK</b> regardless of the angle. If the torque goes over the maximum torque allowed, the status is <b>HIGH</b>.</p> </td></tr> <tr> <td><b>Angle Status</b></td><td> <p>These fields indicate the result for the angle. If the angle is within the angle limits, the status is <b>OK</b>. If the <i>Check Type</i> in the Pset parameters is <i>Torque</i>, the angle status is marked as <b>OK</b> regardless of the torque. If the angle goes over the maximum angle allowed, the status is <b>HIGH</b>.</p> </td></tr> <tr> <td><b>Result number</b></td><td> <p>Progressive number automatically assigned to every tightening result.</p> <p>Min value: 1</p> <p>Max value: 5000</p> <p>When 5000 results are stored in the DWT, the results are overwritten starting from the oldest.</p> </td></tr> <tr> <td><b>Strategy</b></td><td>Type of test executed.</td></tr> <tr> <td><b>Torque result and Angle results</b></td><td>Torque and angle values measured by the sensor.</td></tr> <tr> <td><b>Date / Time</b></td><td>Fields indicating the date and time of the test.</td></tr> <tr> <td><b>Batch status</b></td><td>If the batch size is left to zero, the <i>Batch size</i> is <b>1</b>. If the batch size is set to one or more, the status is <b>OK</b> when all the Psets of the batch are <b>OK</b>.</td></tr> <tr> <td><b>Unit of Measurement</b></td><td>Unit of measurement.</td></tr> </table>	<b>Pset number</b>	The Pset number as defined in the Pset d	<b>Status</b>	This is the global status of the test. It is <b>OK</b> if the torque has been detected according to the thresholds and if the torque does not exceed the maximum torque allowed. If the torque goes over the maximum torque allowed, the status is <b>OVERLOAD</b> .	<b>Torque Status</b>	<p>These fields indicate the result for the torque. If the torque is within the torque limits, the status is <b>OK</b>. If the <i>Check Type</i> in the Pset parameters is <i>Angle</i>, the torque status is marked as <b>OK</b> regardless of the angle. If the torque goes over the maximum torque allowed, the status is <b>HIGH</b>.</p>	<b>Angle Status</b>	<p>These fields indicate the result for the angle. If the angle is within the angle limits, the status is <b>OK</b>. If the <i>Check Type</i> in the Pset parameters is <i>Torque</i>, the angle status is marked as <b>OK</b> regardless of the torque. If the angle goes over the maximum angle allowed, the status is <b>HIGH</b>.</p>	<b>Result number</b>	<p>Progressive number automatically assigned to every tightening result.</p> <p>Min value: 1</p> <p>Max value: 5000</p> <p>When 5000 results are stored in the DWT, the results are overwritten starting from the oldest.</p>	<b>Strategy</b>	Type of test executed.	<b>Torque result and Angle results</b>	Torque and angle values measured by the sensor.	<b>Date / Time</b>	Fields indicating the date and time of the test.	<b>Batch status</b>	If the batch size is left to zero, the <i>Batch size</i> is <b>1</b> . If the batch size is set to one or more, the status is <b>OK</b> when all the Psets of the batch are <b>OK</b> .	<b>Unit of Measurement</b>	Unit of measurement.
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<b>Torque Status</b>	<p>These fields indicate the result for the torque. If the torque is within the torque limits, the status is <b>OK</b>. If the <i>Check Type</i> in the Pset parameters is <i>Angle</i>, the torque status is marked as <b>OK</b> regardless of the angle. If the torque goes over the maximum torque allowed, the status is <b>HIGH</b>.</p>																					
<b>Angle Status</b>	<p>These fields indicate the result for the angle. If the angle is within the angle limits, the status is <b>OK</b>. If the <i>Check Type</i> in the Pset parameters is <i>Torque</i>, the angle status is marked as <b>OK</b> regardless of the torque. If the angle goes over the maximum angle allowed, the status is <b>HIGH</b>.</p>																					
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<b>Unit of Measurement</b>	Unit of measurement.																					

Icon	Icon name	Description																																																													
		<b>Result detailed</b>				This field can be very helpful. It explains the reason of the OK test.																																																									
<b>5.3 EXPORT RESULTS TO EXCEL</b>																																																															
<table border="1"> <thead> <tr> <th>Select</th> <th>Pset number</th> <th>Status</th> <th>Torque status</th> <th>Angle status</th> <th>Result number</th> <th>Strategy</th> </tr> </thead> <tbody> <tr> <td>✗</td> <td>4</td> <td>NOK</td> <td>LOW</td> <td>N.A.</td> <td>46</td> <td>Pulse tool</td> </tr> <tr> <td>✗</td> <td>4</td> <td>OK</td> <td>OK</td> <td>N.A.</td> <td>47</td> <td>Pulse tool</td> </tr> <tr> <td>✓</td> <td>5</td> <td>OK</td> <td>OK</td> <td>LOW</td> <td>48</td> <td>Peak Torq</td> </tr> <tr> <td>✓</td> <td>5</td> <td>OK</td> <td>OK</td> <td>LOW</td> <td>49</td> <td>Peak Torq</td> </tr> <tr> <td>✓</td> <td>5</td> <td>OK</td> <td>OK</td> <td>LOW</td> <td>50</td> <td>Peak Torq</td> </tr> <tr> <td>✓</td> <td>1</td> <td>OK</td> <td>OK</td> <td>OK</td> <td>1</td> <td>Click wren</td> </tr> <tr> <td>✗</td> <td>1</td> <td>OK</td> <td>OK</td> <td>OK</td> <td>2</td> <td>Click wren</td> </tr> </tbody> </table>								Select	Pset number	Status	Torque status	Angle status	Result number	Strategy	✗	4	NOK	LOW	N.A.	46	Pulse tool	✗	4	OK	OK	N.A.	47	Pulse tool	✓	5	OK	OK	LOW	48	Peak Torq	✓	5	OK	OK	LOW	49	Peak Torq	✓	5	OK	OK	LOW	50	Peak Torq	✓	1	OK	OK	OK	1	Click wren	✗	1	OK	OK	OK	2	Click wren
Select	Pset number	Status	Torque status	Angle status	Result number	Strategy																																																									
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✓	1	OK	OK	OK	1	Click wren																																																									
✗	1	OK	OK	OK	2	Click wren																																																									
<p>Select the tests to be exported or saved, and using the command <b>Open with Excel</b> and <b>Save to File</b> you can open this table with Excel and save the results in an Excel (.xls) file, or in a .csv file, or in a .XML file.</p> <p><b>NOTE:</b> The <b>.CSV</b> file is formatted with the semicolon (;) as field separator. If the .CSV file is not opened automatically with Excel, from the Excel menu select <i>Data → Import Data</i>, select the .CSV file, and select the “semicolon” option in the import wizard:</p> <p>chapter for more information.</p>																																																															
	Traces Viewer	<p>This icon opens the Traces Viewer page.</p> <p>See the <i>Traces viewer</i> chapter for more information.</p>																																																													
	Statistics	<p>This icon opens the statistics window.</p> <p>See the <b>Errore. L'origine riferimento non è stata trovata.</b> chapter for more information.</p>																																																													

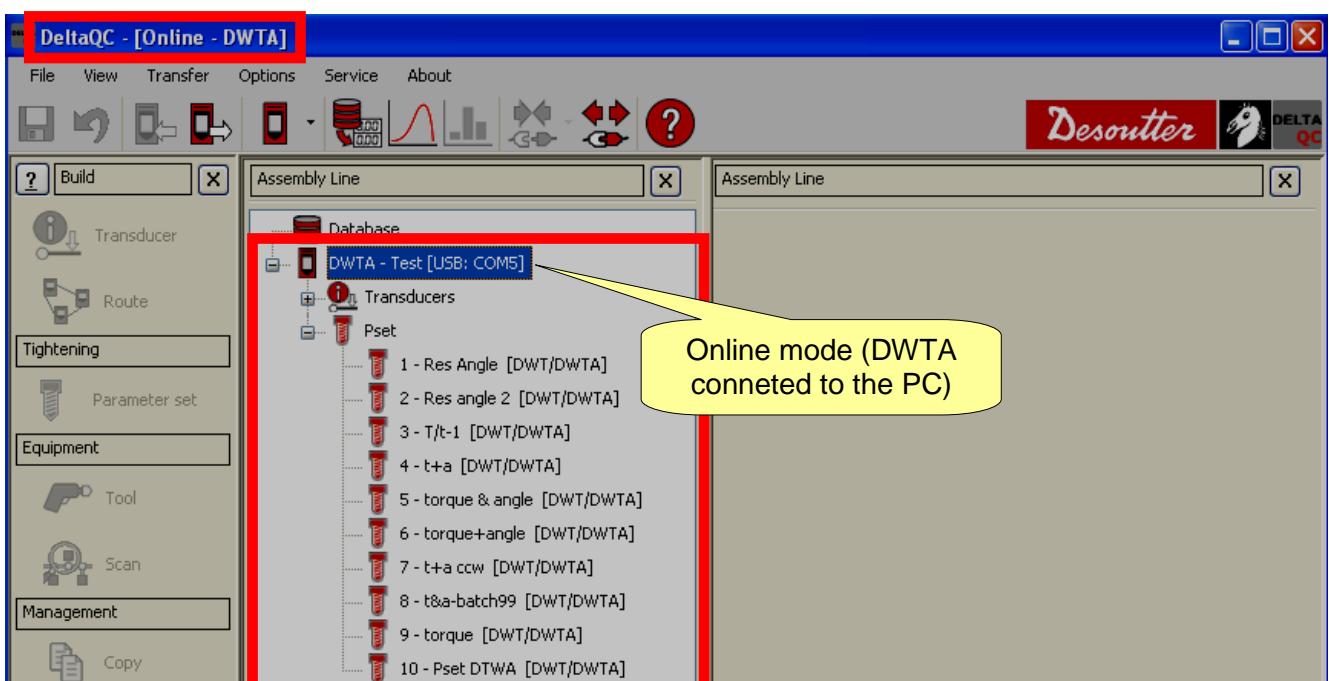
Icon	Icon name	Description
	Connect	Establish the connection between the DWTA and the PC (the icon is disabled when the device is already connected).  See the <i>Connecting to the DWTA</i> chapter for more information.
	Disconnect	Once a connection is established this icon gets active. Click to disconnect the PC from the DWTA.
	Help	This icon opens the <i>Help</i> section (not active in this software version).

### 5.3.1 Status bar



The status bar shows the connection between the DTWA and the DeltaQC. While programming the DTWA with the DeltaQC, it shows information about the Pset parameters.

### 5.3.2 Online mode



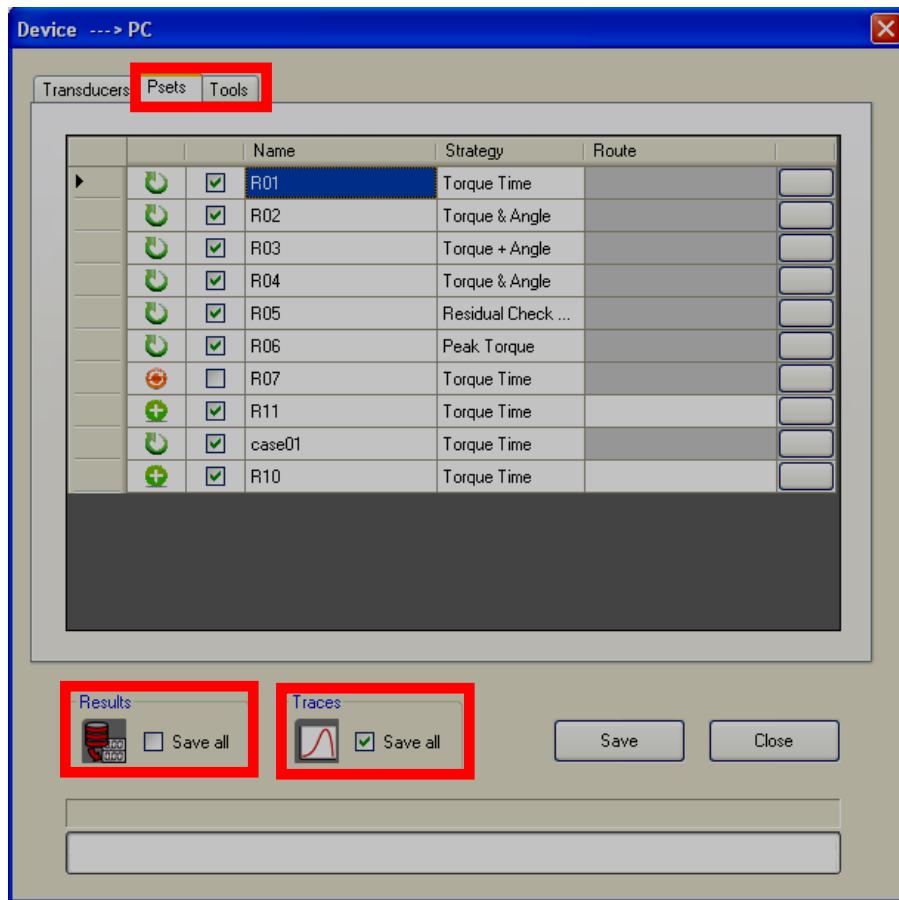
The **Online mode** is active only when a DWTA is connected to the PC. It defines the tests programs directly on the instrument. The **Online mode** provides also shortcuts to DWTA configuration, results and traces viewers. The Online mode adapts and slightly change its submenus according to the specific DWTA connected.

Click on the minus or plus symbols to close and open menus, and double click on function names to open the corresponding function.

See the chapters dedicated to the different DWTA versions to view in details how to create and setup a test program for your specific DWTA.

### 5.3.2.1 Transfer online data to the database

All the information defined online can be saved in the local database file (including test results and traces), by selecting **Transfer → Device --> PC** in the main DeltaQC window. The following window is shown:



Select the items (Psets, Tools, Results and Traces) to be transferred from the DWTA to the local database on the PC and click on **Save** to confirm.

Psets are marked with two different icons:



The Pset is already present in the database and it is updated if some of its parameters have been changed.

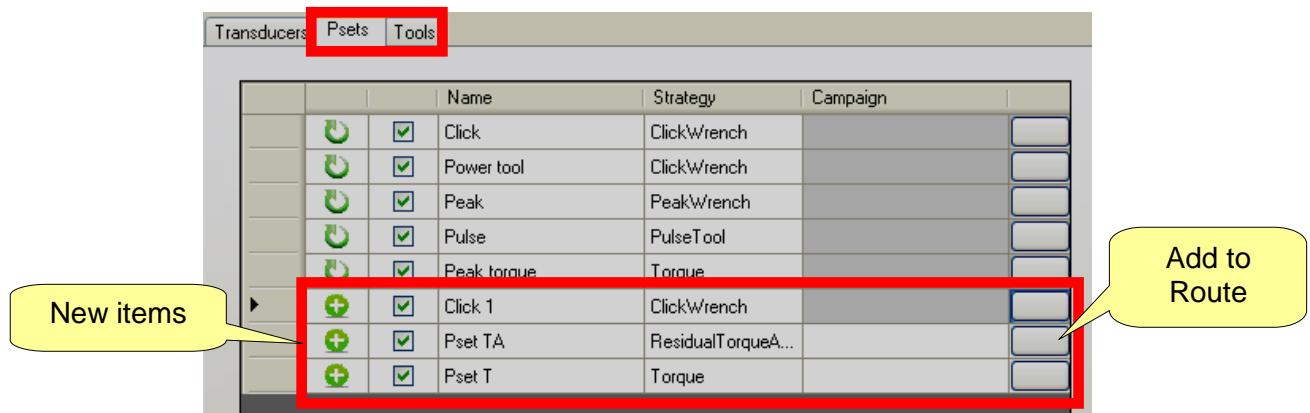


The Pset has been created directly on the DWTA and it is added to the database.

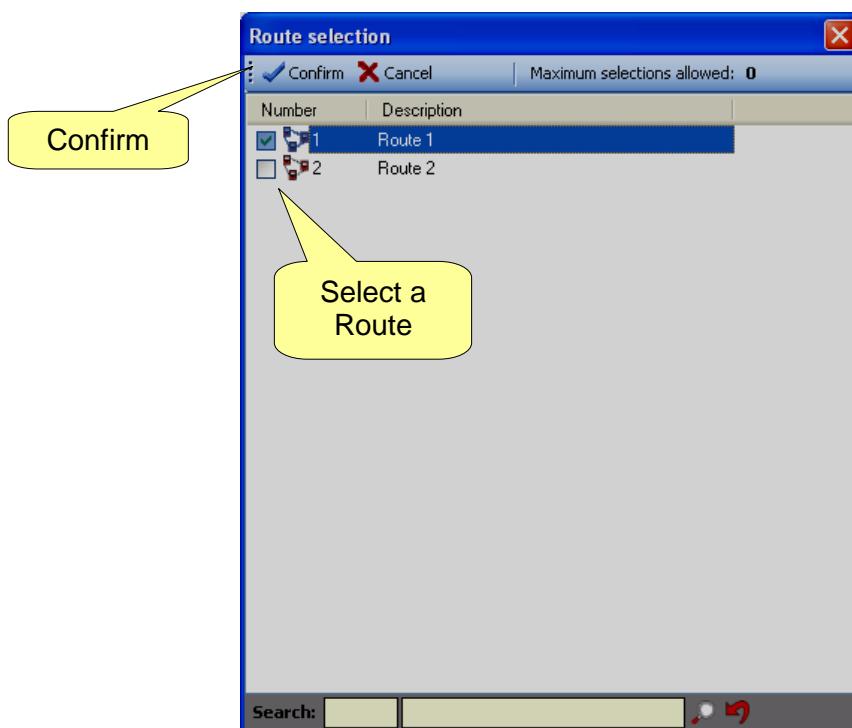


In the database there is already a Pset with that name, but created for another device and not for the DTWA; the Pset cannot be saved (it should be renamed).

Psets marked as new can be added here to a Route (see the *Offline mode* chapter for details of Route):



The “add to Route” command is available only if there is a relevant Route for the new Pset/tool. In the figure above only the second and third Psets can be added to a Route. When clicking on the “add to Route” button the following window is shown:

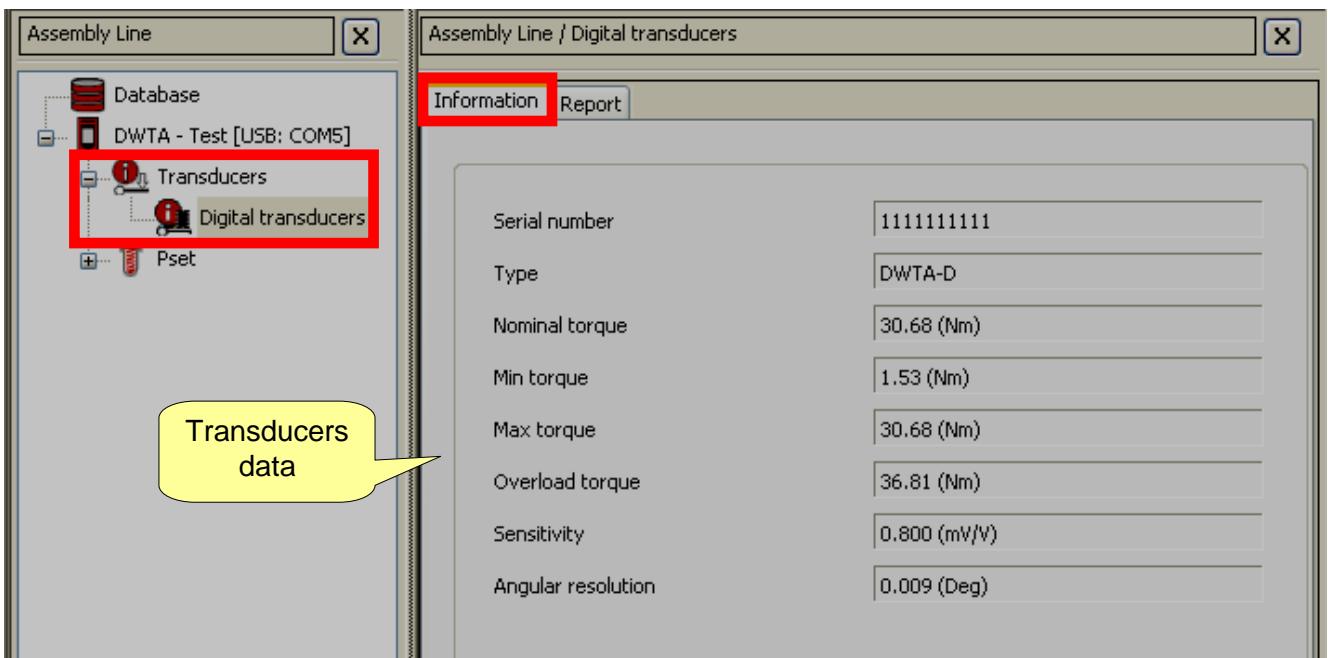


The route must be defined offline with at least one item already linked. Empty routes are not shown here.

Select the Route and click on **Confirm** to save.

### 5.3.2.2 DWTA transducer information

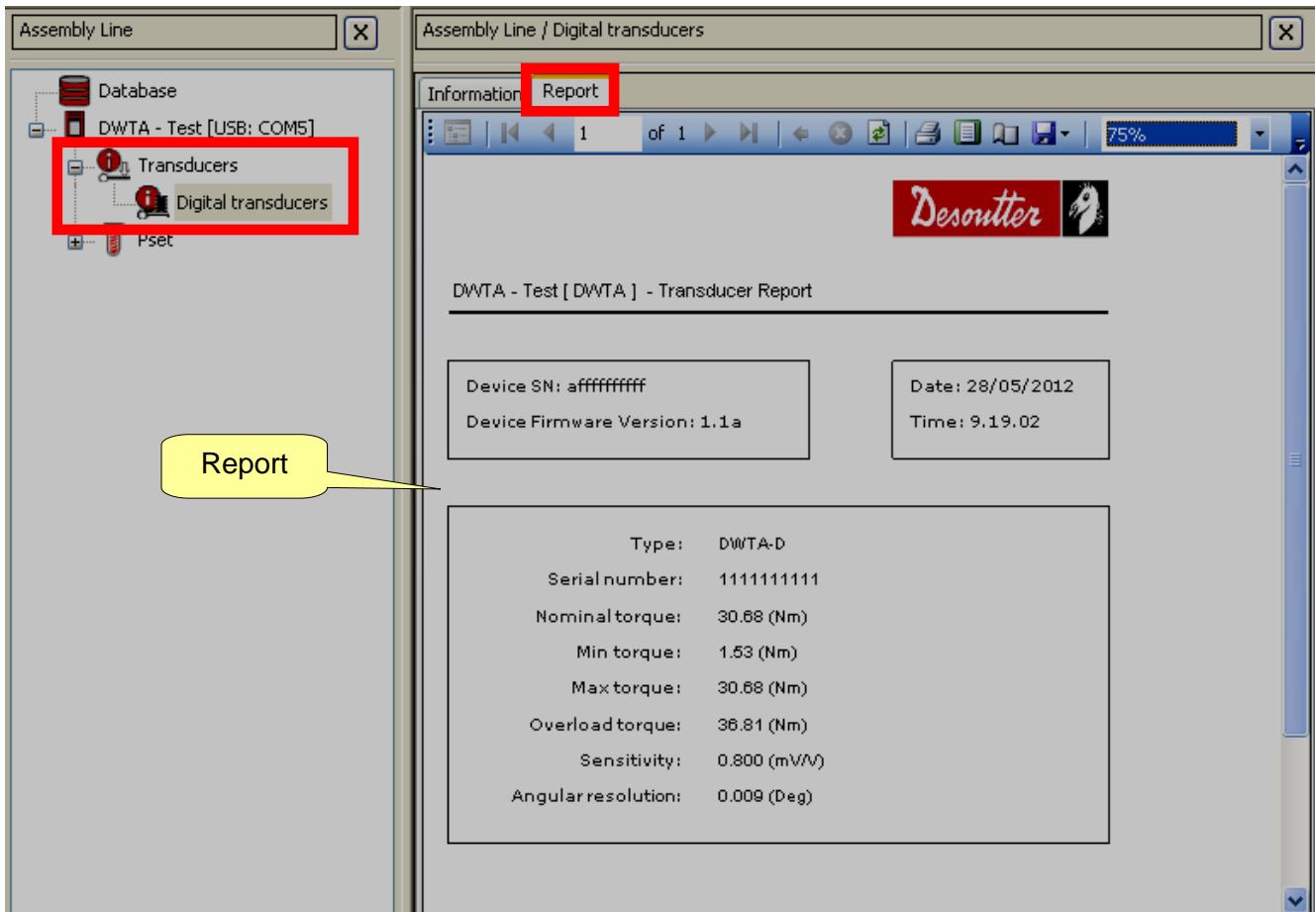
In the **Transducer** menu on the online mode it is possible to view the details of the DTWA torque and angle transducers:



The following data are shown:

<b>Serial number</b>	Transducer serial number, in general different from the DWTA serial number.
<b>Type</b>	DWTA type.
<b>Nominal torque</b>	This value is the capacity value written inside the transducer. It is normally slightly higher than the nominal capacity marked on the DWTA.
<b>Min. Torque</b>	Minimum load of the DWTA, which is set to the 5% of the <i>Nominal torque</i> .
<b>Max. Torque</b>	Maximum torque of the DWTA, which is set to the same value of the <i>Nominal torque</i> .
<b>Overload torque</b>	Maximum torque applicable to the DWTA without producing damages.
<b>Angular resolution</b>	Angular resolution of the gyroscope.

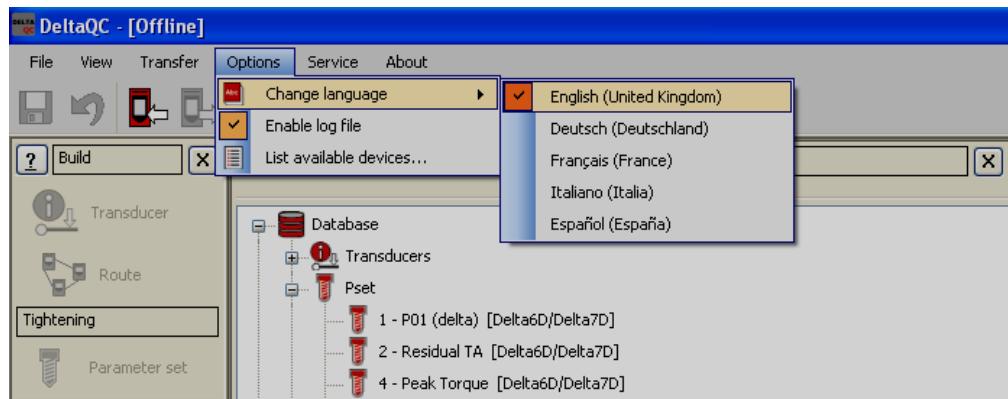
In the **Report** area it is possible to see and print a report:



The toolbar in the upper area of the report provides functions to print the report, or export it to Excel or PDF file.

## 5.4 SETTINGS IN DELTAQC

You can set the language from the **Options** → **Change language** menu:



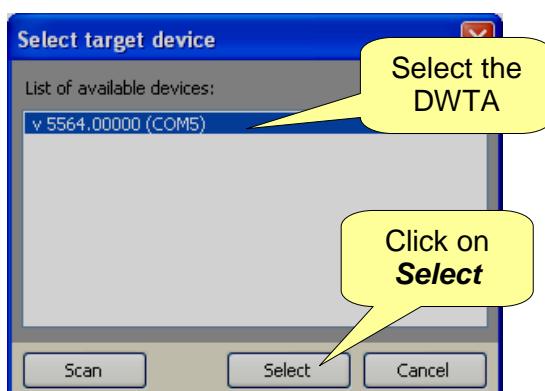
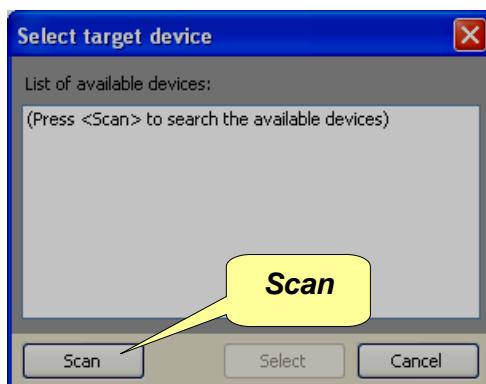
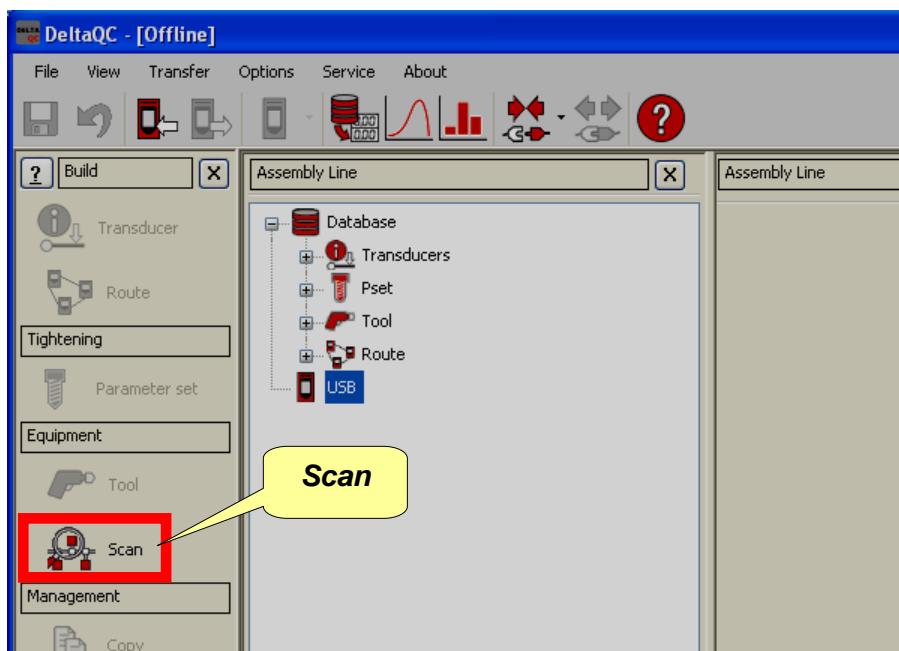
After changing the language, restart the software to make the change effective.

## 5.5 CONNECTING TO THE DWTA

The connection between the DeltaQC and the DWTA is done via USB.

### 5.5.1 USB connection

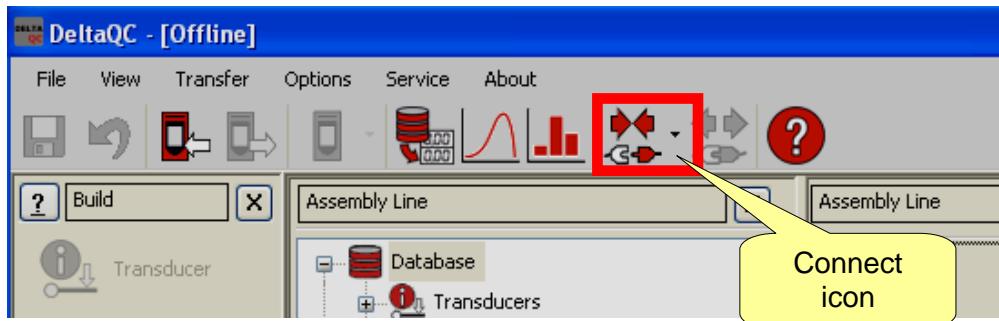
When connecting the DWTA to the PC with the software for the first time, select **Scan**:



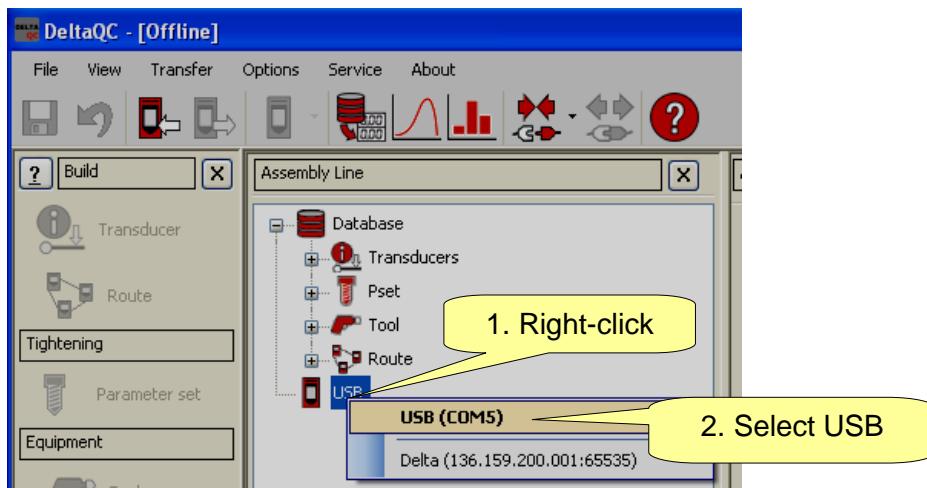
This operation is necessary only once.

After the first time, perform the following sequence:

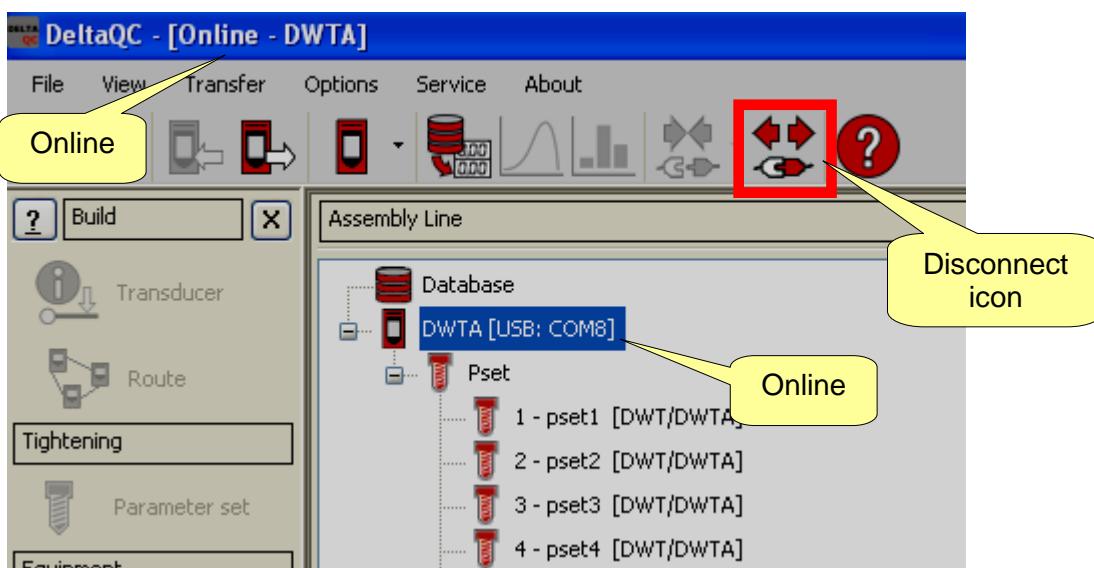
- Launch the DeltaQC.
- Turn on the DWTA and wait for the DWTA to power on (the main menu appears on the display)
- Connect the DWTA to the PC through USB cable (with the DWTA already turned on)
- Select DWTA, and click on the **Connect** icon and select USB to connect to the instrument:



It is also possible to right-click on icon in the Assembly Line:



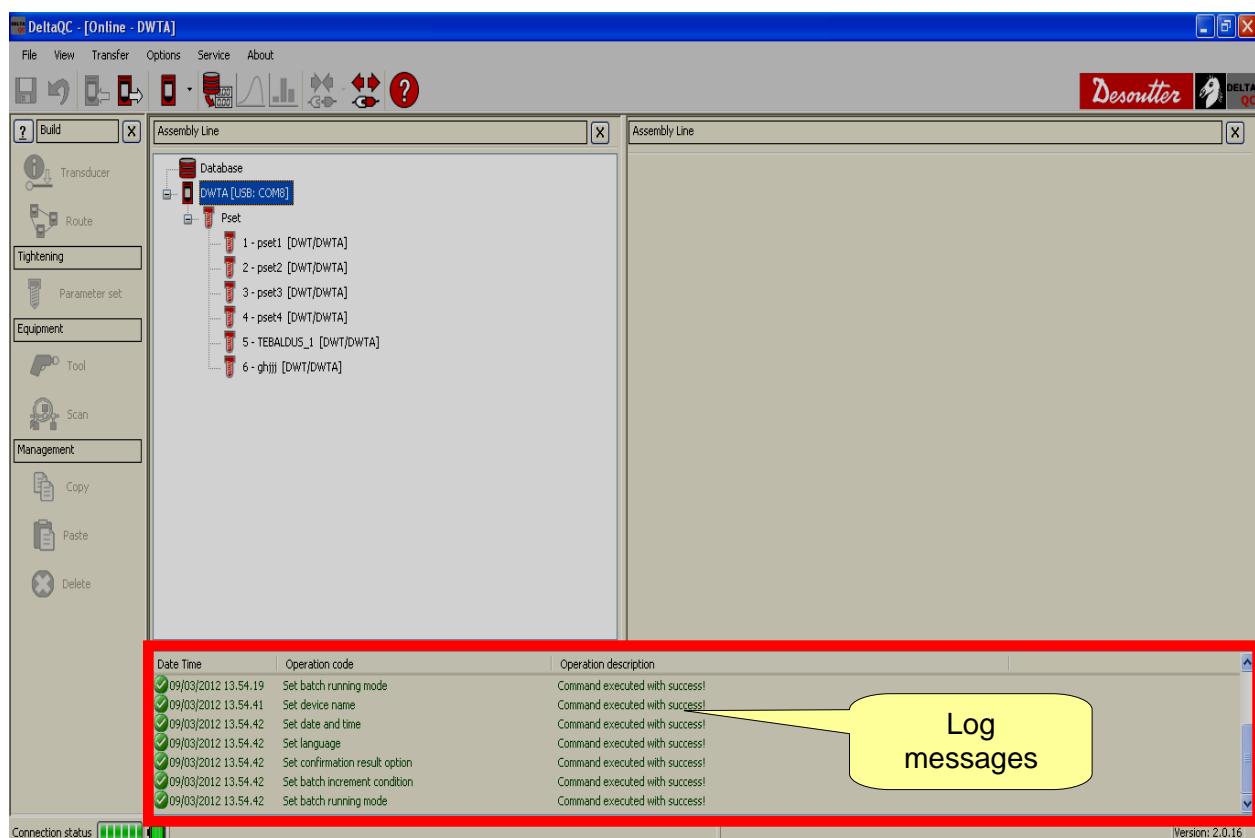
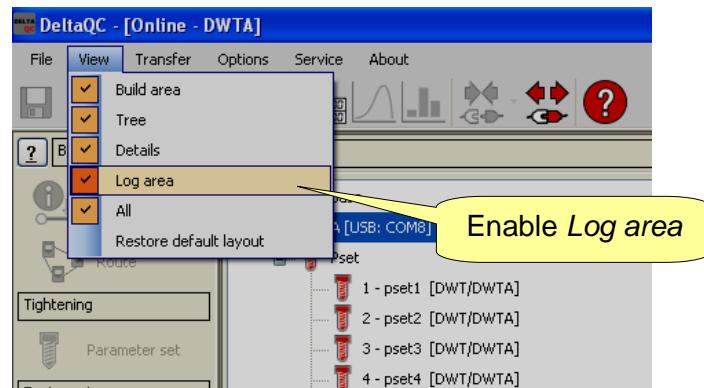
When the DWTA is connected, the **Connect** icon is disabled, the **Disconnect** icon becomes active:



## 5.6 DWTA LOG VIEWER

The **log viewer** function displays information about the DWTA – DeltaQC communication. This can be helpful for troubleshooting activities.

Enable the **log area**:



A log file is automatically created in a subfolder of the installation directory of the DeltaQC, typically:

**C:\Program Files\Desoutter\DeltaQC\Log**

A new file is created each day the software is used; the old files can be deleted if no longer needed.



**NOTE:** The LOG file can be enabled or disabled in the menu **Options → Enable log file**.

## 6 Pset

The set of parameters that controls the tightening process is contained within a so-called **Pset**. This section describes how to setup the Pset parameters necessary to perform a tightening.

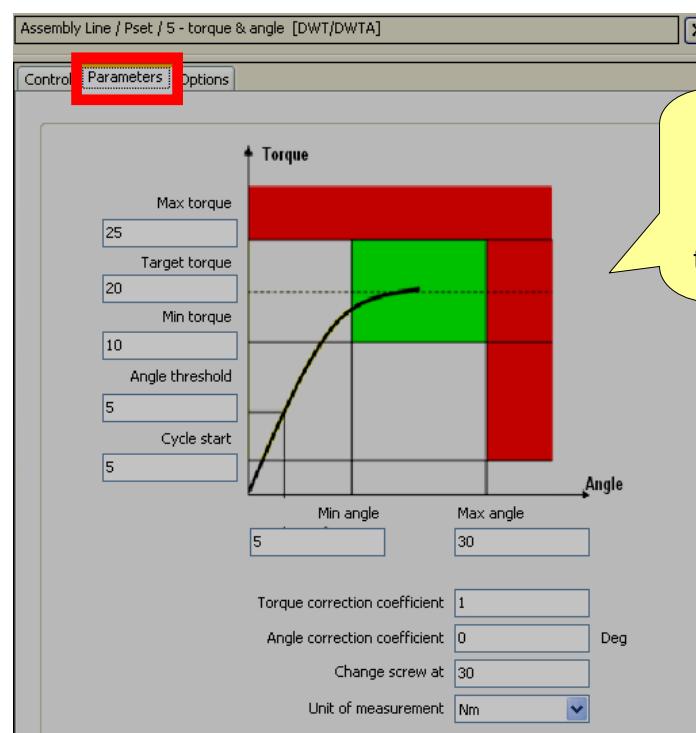
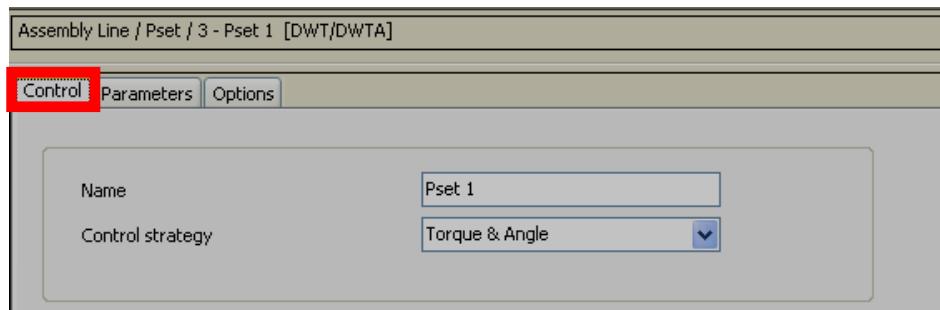
The DWTA can store up to 10 Psets in its memory.



Click on the Pset icon and enter the Pset **Number** and **Name**.



Click on **OK** to proceed programming the Pset:



## 6.1 TORQUE PARAMETERS

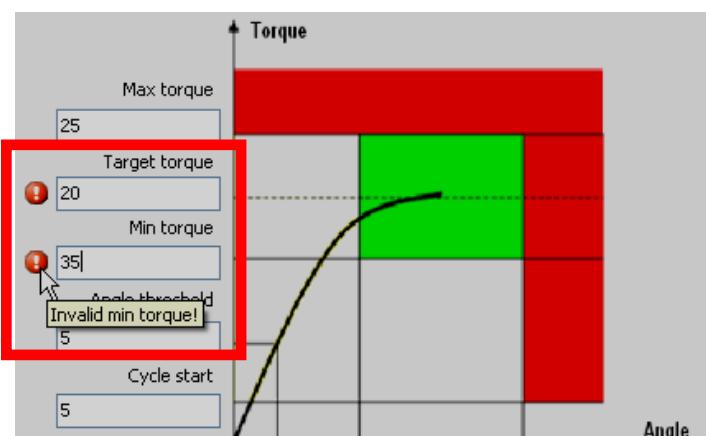
<b>Cycle Start</b>	Torque value from which to start the tightening operation. This must be higher than the min. load value; if not, when the Pset is started a "Min load error" message is shown on the display.
<b>Final Torque min</b>	Torque limit low.
<b>Final Target</b>	Torque target.
<b>Final Torque max</b>	Torque limit high.
<b>Torque correction coefficient</b>	For normal operations leave this parameter set to 1 (default value). If an extension is used, this coefficient permits to compensate the effect of the extension on the torque measurement. See the <i>Appendix A - Calculating correction coefficients for extensions</i> chapter for details of how to calculate this coefficient.
<b>Change screw at</b>	If the torque reaches this limit, the message "change screw" is shown on the display. This parameter must be set higher than the <i>Final Torque max</i> value.
<b>Unit of measurement</b>	Select the desired unit.

If a DWTA is connected while programming, the torque parameters are set per default as following:

- *Cycle start* = *Angle threshold* = *Minimum torque* = *Maximum torque* = 5% transducer nominal torque
- *Change screw* = Transducer nominal torque
- *Target torque* (if present in the Pset control strategy) = Transducer nominal torque; in this case also the *Maximum torque* is set to this value.



**NOTE:** All the Torque parameters defined for a Pset must be higher than the minimum load and lower than the capacity of the DWTA; otherwise, a *Min Load error* or a *Capacity Error* are shown on the display when the Pset is started. Also, the set of parameters must be consistent. For example, when storing a Pset, if the *Min Torque* is greater than the *Target Torque*, an error message is shown:



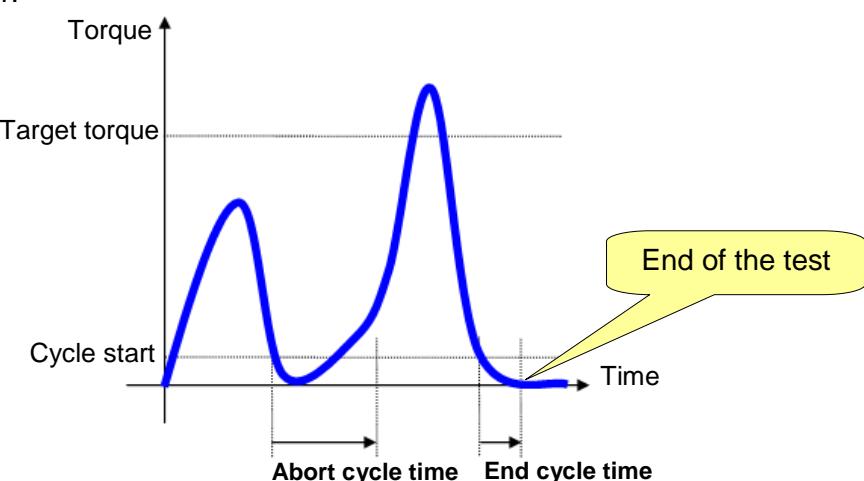
## 6.2 ANGLE PARAMETERS

<b>Angle threshold</b>	Torque threshold from which to start the angle count.
<b>Minimum angle</b>	Angle limit (low).
<b>Maximum angle</b>	Angle limit (high).
<b>Target angle</b>	Enable/disable the function to check if the screw is already tightened (defined through the <i>Check already tightened angle</i> parameter).
<b>Angle correction coefficient</b>	For normal operations leave this parameter set to 0 (default value). If an extension is used, this coefficient permits to compensate the error in the angle reading due to the bending of the extension. See the <i>Appendix A - Calculating correction coefficients for extensions</i> chapter for details of how to calculate this coefficient.

## 6.3 TIME

<b>End cycle time</b>	Applied when torque goes below the cycle start and reaches the <i>target torque</i> value; the default value is 0.1 second. Minimum value: 0.1 Sec Maximum value: 5 Sec
<b>Abort cycle time</b>	Applied when the torque goes below the cycle start but has not yet reached the <i>target torque</i> value. This allows the operator to release the torque for a while and recharge during the tightening operation; the default value is 5 seconds. Minimum value: 0.1 Sec Maximum value: 30 Sec

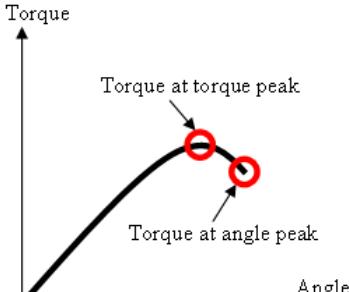
The DTWA ends the tightening operation if the torque drops beneath the *Cycle Start* value for a longer time than the timer.



## 6.4 BATCH PARAMETERS

<b>Batch count</b>	Enable this flag to execute the Pset more than once.
<b>Batch size</b>	<p>If <i>Batch count</i> is enabled, it specifies how many times the Pset must be executed. Maximum value: 99</p> <p>NOTE: If the <i>Batch count</i> is disabled, the <i>Batch status</i> in the tightening results is always OK.</p> <p>By enabling the <i>Batch count</i> and setting the <i>Batch size</i> to 1, it is possible to have the <i>Batch result</i> OK only if the Pset gives result OK. If the <i>Batch size</i> is greater than 1, the <i>Batch result</i> is OK only if all of the Pset give result OK.</p>

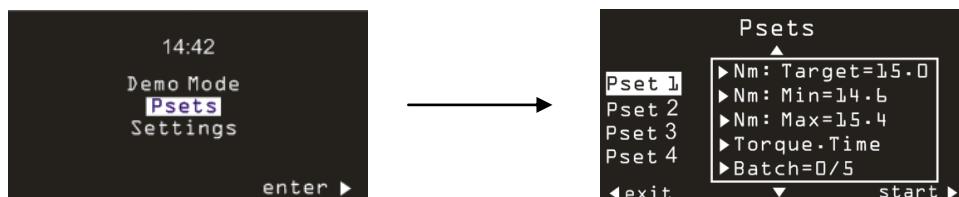
## 6.5 OPTIONS

<b>Tightening direction</b>	Select the desired tightening direction between clockwise ( <b>CW</b> ) and Counterclockwise ( <b>CCW</b> ).
<b>Measure Peak at</b>	<p>Select between <b>Torque</b> and <b>Angle</b></p>  <p><b>NOTE:</b> The torque result of a tightening changes according to the tightening strategy. See the specific tightening strategies at the end of this chapter for details.</p>
<b>Check already tightened angle</b>	<p>If the operator tries to tighten a screw which is already tightened, the torque increases with just a little rotation (or without any rotation) of the screw. This function monitors this event and provides an error message on the display.</p> <p>Enable the flag to activate this function, and specify the <b>Check already tightened angle</b> value, which is typically set to few degrees.</p> <p>If the torque reaches the <i>Min. Torque</i> value within this angle, the error message "screw already tightened" is shown</p>

## 6.6 RUNNING A PSET

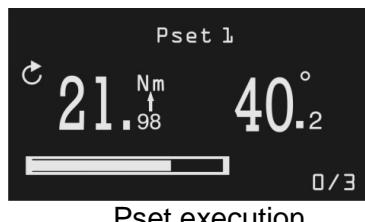
Once the Pset is created on the wrench map area in DeltaQC, it is automatically sent to the DWTA.

To execute the Pset, select **Pset** from the main menu of the DWTA:



Select the Pset from the list of the available Psets and click on the **OK** button on the keyboard to start the Pset.

During the Pset execution, the display shows the torque and angle values, and the tightening direction:



Pset execution

<b>Pset 1</b>	Pset name.
<b>21. Nm ↑ 40. °</b>	Torque and Angle values. The arrow under the Nm label indicates if result is taken on the torque peak or angle peak (when applicable). At the end of a Pset execution, press the <b>OK</b> button on the keyboard to reset the torque and angle values to zero.
<b>↻</b>	The arrow indicates the direction in which the tightening must be executed (Clockwise or Counterclockwise).
<b>0 / 5</b>	If the Pset batch size is greater than one, the batch count number is displayed on the right side of the bottom part of the screen. The first Pset of the batch is marked as 0.  For Production strategies, if the batch is quit before completing all the tests the batch are reset (the results are saved anyway). For Quality Control strategies, it is possible to exit a batch before completing and restore it; see the <i>DWTA controller setup</i> chapter for details.
<b>██████████</b>	The progressive bar shows the actual torque applied. The bar is filled up when the torque reaches the target value. The bar is shown only for production strategies.

For each tightening operation, the LEDs and buzzer are activated according to the selected control strategy. Refer to the next paragraphs for details.

Tightening results data and traces are stored automatically in the memory; see the *Results viewer* chapter for information on how to retrieve results with DeltaQC.

## 6.7 TIGHTENING STRATEGIES

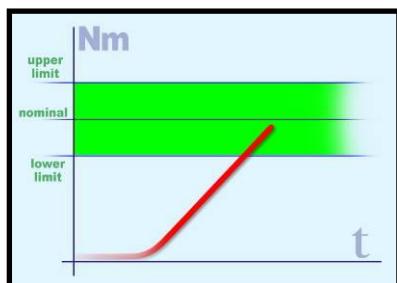
Tightening strategies can be divided into two main categories:

- Production: Strategies for tightening a screw
- Quality Control: Strategies for evaluating residual torque

### 6.7.1 Production Strategies

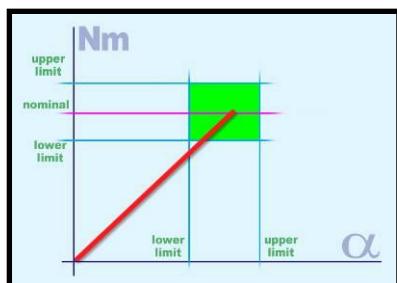
Production strategies can be divided into four main categories:

#### 1. Tightening within torque limits



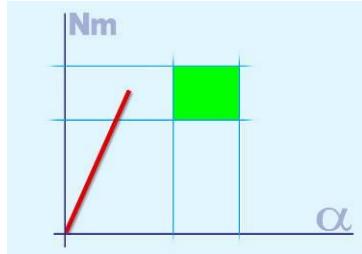
This is the easiest tightening method, simply applying the torque within the limits.

#### 2. Tightening within torque and angle limits (tightening to a window)



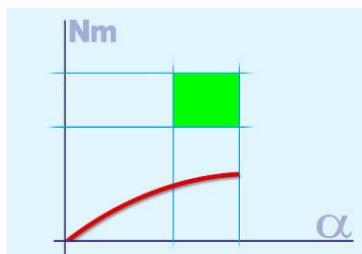
This is a more accurate way to tighten, as we use additional information (angle) during the tightening process. Using this method you can detect possible problems on the joint:

Torque is correct, but angle is too short:



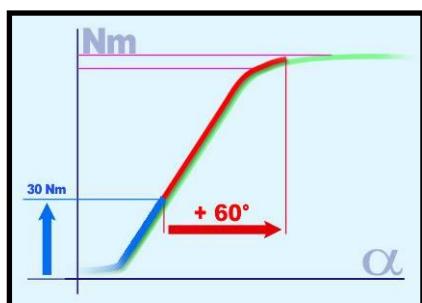
- Misalignment problem
- The hole is not completely threaded (or it is not deep enough)
- The bolt is stopped by oil in a dead hole
- There is dirt in the threads
- The threads are damaged
- The screw is already tightened

Angle is correct, but torque is too low:



- The thread may be stripped out
- The screw is too soft (tightened over yield)
- Unexpected low  $\mu$  (friction coefficient)

### 3. Tightening with torque and additional angle rotation (torque + angle)



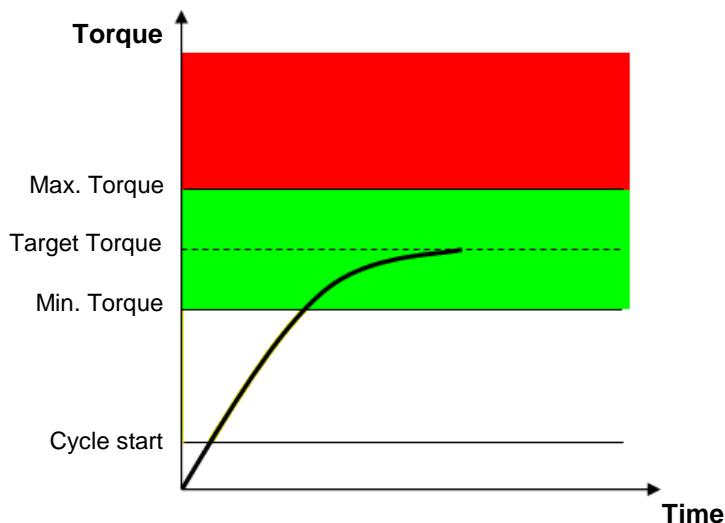
The bolt is first tightened to a certain torque and then it is further tightened to a specific angle.

The goal is to stress the bolt over the yield point. Even with differences in the angle the torque (causing clamping force) is quite consistent. Sometime the joint is specially designed and of course experiments have been done (joint analysis) to be sure that strain is far away from the breaking point.

### 6.7.1.1 Torque

This strategy guides the operator in reaching the desired target torque, without any angle reading.

Simply define the *Cycle start*, *Minimum Torque*, *Target Torque* and *Maximum Torque*, and the *Change Screw Torque*.



The green area identifies the OK result area.

If the torque goes over the “change screw” value a message is shown on the wrench display advising the operator to replace the screw.

The torque result is the maximum torque measured during the tightening.

The DWTA display background is colored as follows:

<b>Blue</b>	Default color used for Pset execution.
<b>Green</b>	The display turns green if the test ends with OK result.
<b>Red</b>	Torque and/or angle over the maximum limits.

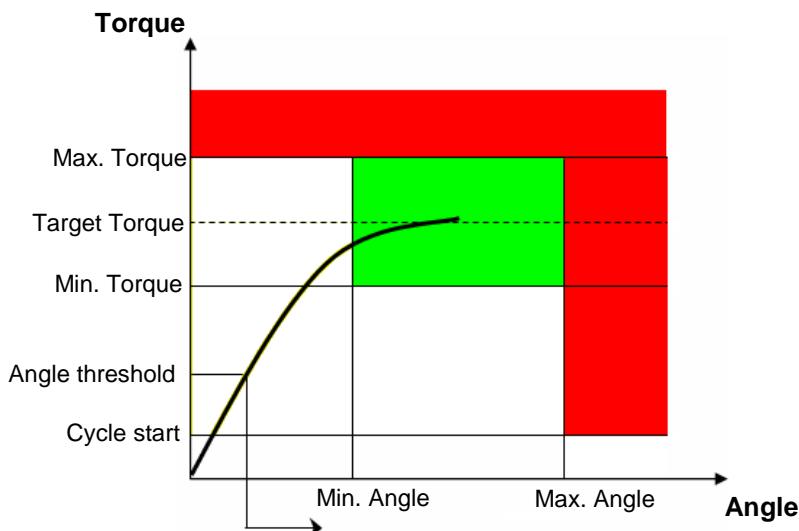
The buzzer is activated as follows:

<b>Buzzer</b>	<p>The beep emitted by the buzzer starts when the torque goes over the <i>Cycle Start</i> value, and it increases its signal when approaching the target.</p> <p>At the end of the tightening operation three more beeps inform the operator of the end of the operation; if the torque or angle go over the maximum values, the beep is repeated at high frequency to indicate the error.</p>
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### 6.7.1.2 Torque & Angle

This strategy guides the operator in reaching the desired target torque and monitoring the angle.

The *Angle threshold* parameter is the threshold from which to start angle measurement (normally set to 50% of the *Target Torque*).

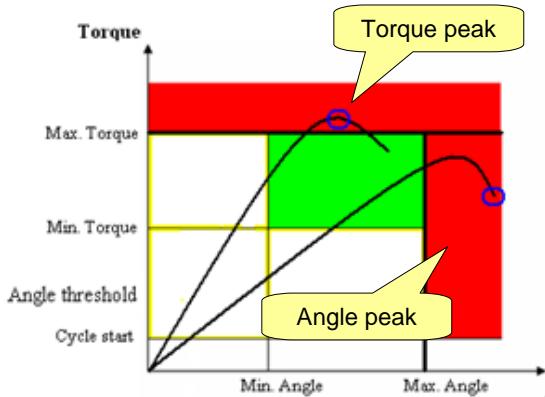


The green area defines the OK result area.

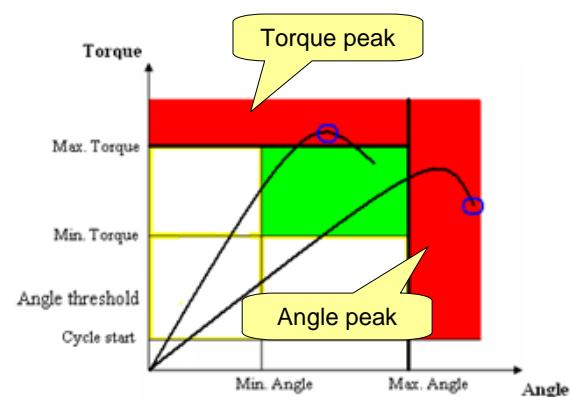
If the torque goes over the “change screw” value a message is shown on the wrench display advising the operator to replace the screw.

Torque/angle results:

- If the torque/angle does not exceed the torque/angle limits, the result is taken at the torque peak or angle peak as specified in the Pset options.
- If the torque/angle goes over the limit, the result is taken as follow:



Torque peak selected in the Pset



Angle peak selected in the Pset

The DWTA display background is colored as follows:

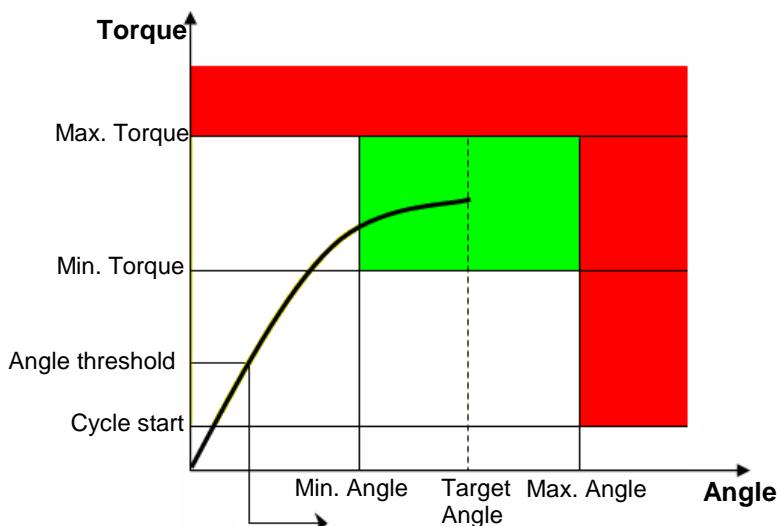
<b>Blue</b>	Default color used for Pset execution.
<b>Green</b>	The display turns green if the test ends with OK result.
<b>Red</b>	Torque and/or angle over the maximum limits.

The buzzer is activated as follows:

<b>Buzzer</b>	<p>The beep emitted by the buzzer starts when the torque goes over the <i>Cycle Start</i> value, and it increases its signal when approaching the target.</p> <p>At the end of the tightening operation three more beeps inform the operator of the end of the operation; if the torque or angle go over the maximum values, the beep is repeated at high frequency to indicate the error.</p>
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### 6.7.1.3 Torque + Angle

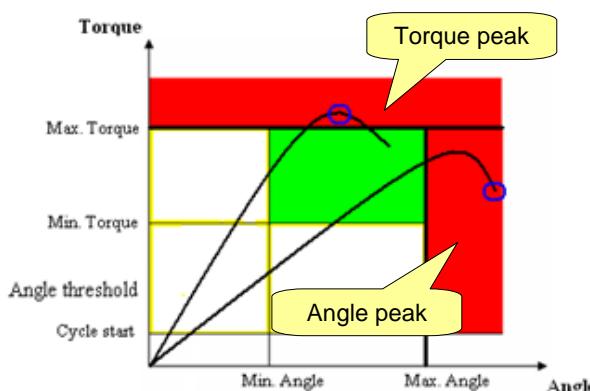
This strategy guides to operator in reaching the desired target angle and monitoring torque.



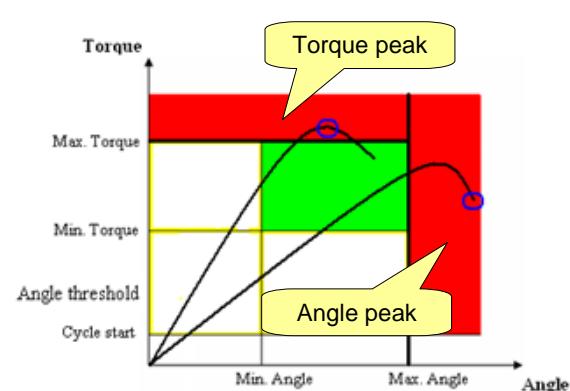
This strategy is similar to Torque & Angle; the *Target Angle* value is required instead of the *Target Torque*, and the progressive bar increase with the angle and not with the torque.

Torque/angle results:

- If the torque/angle does not exceed the torque/angle limits, the result is taken at the torque peak or angle peak as specified in the Pset options.
- If the torque/angle goes over the limit, the result is taken as follow:



Torque peak selected in the Pset



Angle peak selected in the Pset

The DWTA display background is colored as follows:

<b>Blue</b>	Default color used for Pset execution.
<b>Green</b>	The display turns green if the test ends with OK result.
<b>Red</b>	Torque and/or angle over the maximum limits.

The buzzer is activated as follows:

<b>Buzzer</b>	<p>The beep emitted by the buzzer starts when the torque goes over the <i>Cycle Start</i> value, and it increases its signal when approaching the target.</p> <p>At the end of the tightening operation three more beeps inform the operator of the end of the operation; if the torque or angle go over the maximum values, the beep is repeated at high frequency to indicate the error.</p>
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## 6.7.2 Quality Control Strategies

The quality control strategies are not the strategies used to tighten a screw; they are used to check tightening operations already performed, measuring the residual torque.

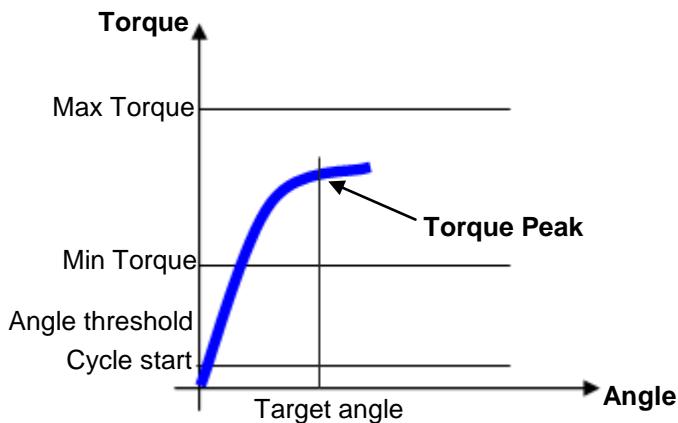
The strategies for evaluating residual torque can be divided in two main categories:

- **Residual Check Angle:** This measures the torque necessary to rotate the screw further, measuring it at the specified angle.
- **Peak Torque:** This measures the peak of the torque necessary to rotate the screw further. The operator must stop as soon as the screw starts rotating.

The paragraphs below describe in detail how the DWTA performs these strategies.

### 6.7.2.1 Residual Check Angle

This strategy evaluates the residual torque on a joint, measuring the torque necessary to rotate the screw further.



Define the torque limits where the result is considered as OK.

The **Angle threshold**, which must be greater than the **Cycle start**, defines the point from which the DWTA starts measuring the angle. The recommended values are Target Angle set to 2 degrees and the Angle Threshold set to the 50% of the expected residual torque.

## Torque result:

- Torque measured at the target angle, if the target angle is reached.
- Maximum torque measured, if the target angle is not reached, or if the torque goes over the *Change Screw* value.

If during the residual torque check the operator goes over the ***Change Screw*** value, a message is shown on the wrench display to indicate that the screw must be replaced with a new one.

The DWTA display background is colored as follows:

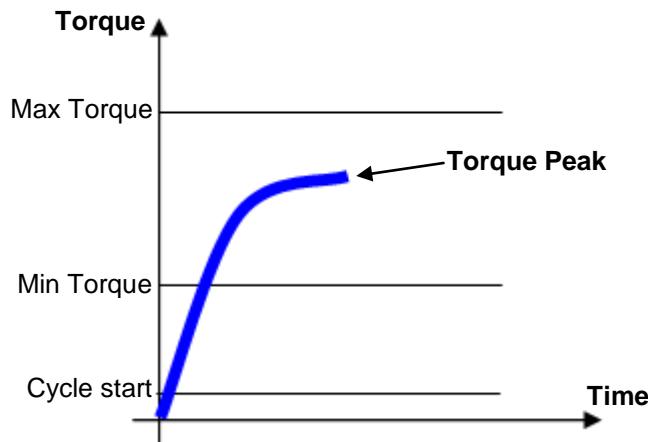
<b>Blue</b>	Default color used for Pset execution.
<b>Green</b>	The display turns green if the torque result is between the minimum and maximum torque.
<b>Red</b>	The display turns red if the torque result is below the minimum or over the maximum torque

The buzzer is activated as follows:

<b>Buzzer</b>	The beep emitted by the buzzer starts when the torque goes over the <i>Cycle Start</i> value. At the end of the tightening operation three more beeps inform the operator of the end of the operation; if the result is not OK, the last beep remains active to indicate the error, and it is reset when the <b>OK</b> or <b>CL</b> button is pressed.
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### 6.7.2.2 Peak Torque

This strategy evaluates the residual torque on a joint as the peak of the torque necessary to rotate the screw further. The result of this strategy is affected by operator movement; it is important to release the torque as soon as the screw starts moving.



Specify the cycle start and the torque limits.

You also need to set a **Change Screw** value: If the operator goes over this value, a message is shown on the wrench display to indicate that the screw must be replaced with a new one.

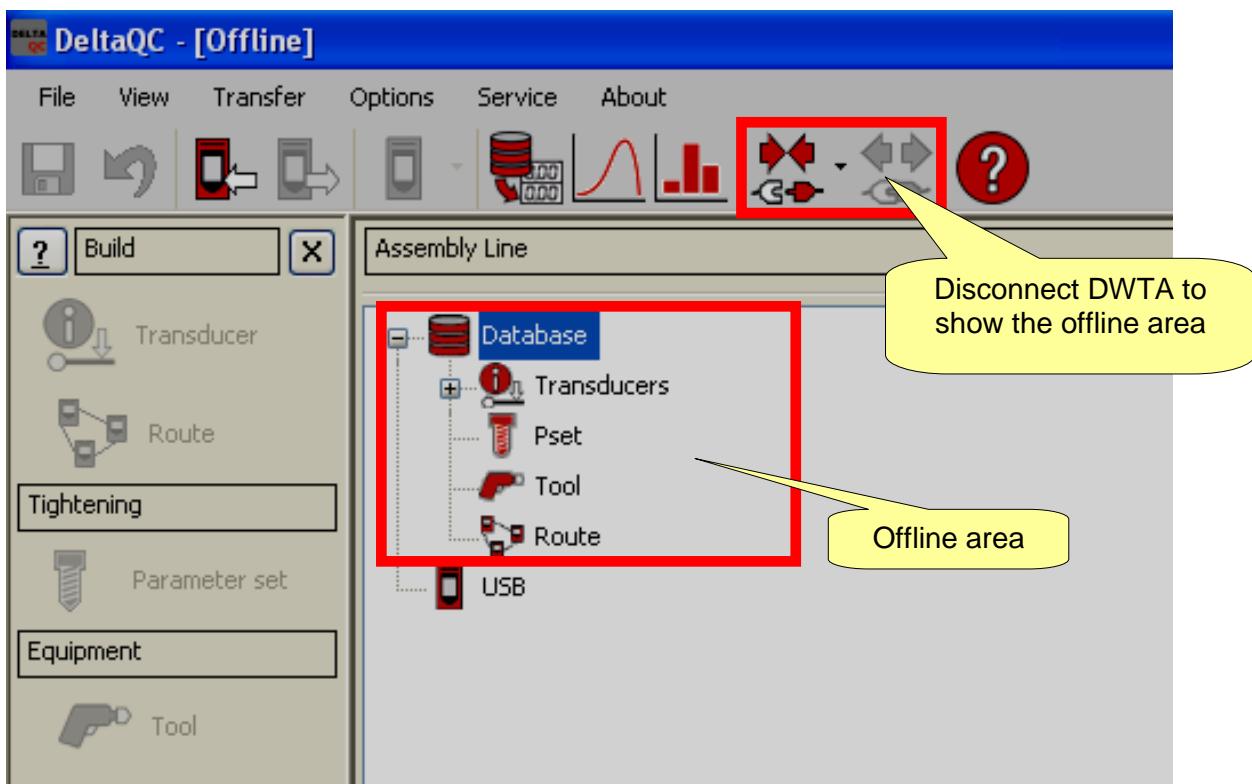
The DWTA display background is colored as follows:

<b>Blue</b>	Default color used for Pset execution.
<b>Green</b>	The display turns green if the torque peak is between the minimum and maximum torque.
<b>Red</b>	The display turns red if the torque peak is below the minimum or over the maximum torque.

The buzzer is activated as follows:

<b>Buzzer</b>	The beep emitted by the buzzer starts when the torque goes over the <i>Cycle Start</i> value. At the end of the tightening operation three more beeps inform the operator of the end of the operation; if the result is not OK, the last beep remains active to indicate the error, and it is reset when the <b>OK</b> or <b>CL</b> button is pressed.
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## 7 Offline mode



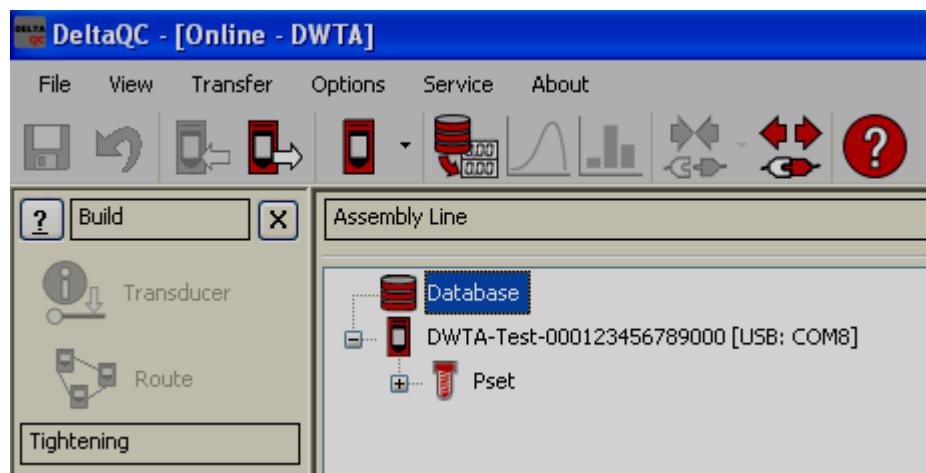
The **Offline** mode gives the user the opportunity to create Pset without a DWTA connected to the PC. All of the data are stored in a local database. The Psets defined offline can be grouped into “Routes” and transferred to the DWTA.

The database stores also all of the results (up to 32000) downloaded from the DWTA. See the *Results viewer*

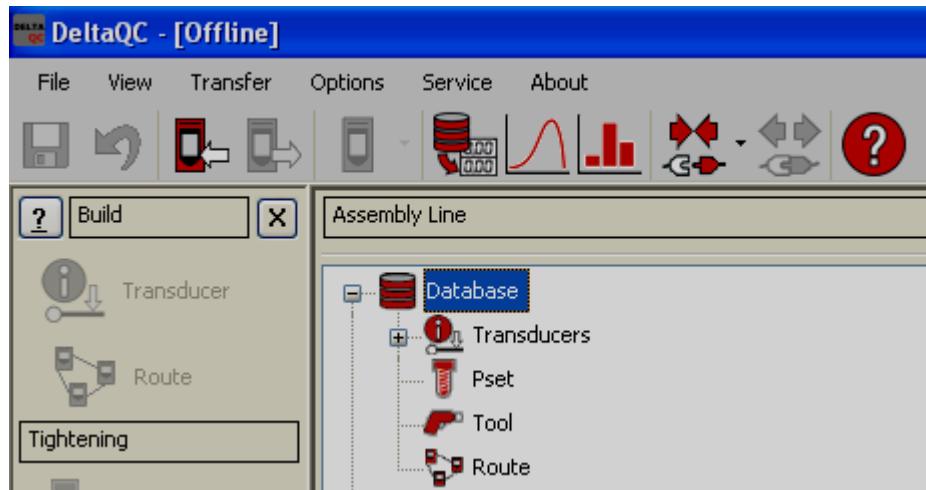
The **Results viewer** function permits to retrieve the results from the DWTA or from the database.

The DWTA can store up to 5000 results; when the memory is full the new results overwrite the oldest results stored.

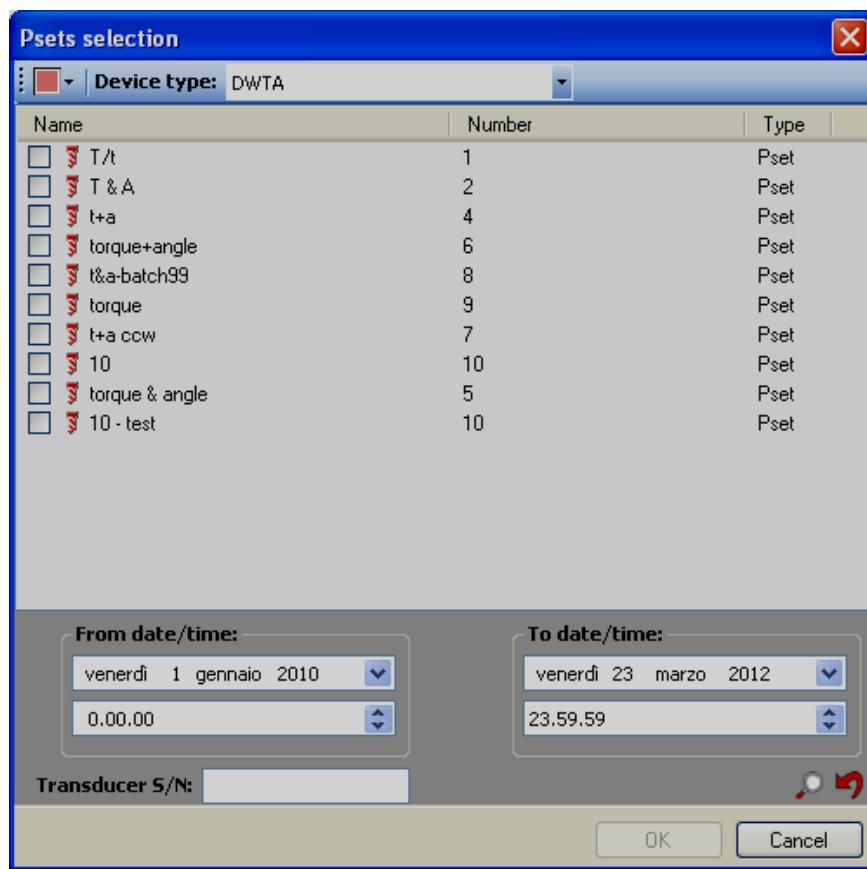
To view the results stored on the DWTA, connect the instrument to the DeltaQC and select the result viewer:



To view the results downloaded from the DWTA and stored in the database, work in offline mode:



When clicking on the **Result Viewer** icon, the following window is shown:



Select what you wish to review and click on **OK**. The following window is shown:

	Select	Pset number	Status	Torque status	Angle status	Result number	Strategy	Torque result	Angle result	Description	Date	Time	Batch status
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	76	Torque Time	14.30		T/t	08/03/2012	11:10:35	NOK
	<input checked="" type="checkbox"/>	1	NOK	HIGH	N.A.	77	Torque Time	70.31		T/t	08/03/2012	11:11:36	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	78	Torque Time	11.21		T/t	08/03/2012	11:13:32	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	79	Torque Time	11.75		T/t	08/03/2012	11:13:37	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	80	Torque Time	11.89		T/t	08/03/2012	11:13:42	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	81	Torque Time	10.34		T/t	08/03/2012	11:13:45	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	82	Torque Time	12.15		T/t	08/03/2012	11:13:51	OK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	83	Torque Time	10.16		T/t	08/03/2012	11:15:09	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	84	Torque Time	19.95		T/t	08/03/2012	11:35:14	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	85	Torque Time	19.96		T/t	08/03/2012	11:37:01	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	86	Torque Time	19.97		T/t	08/03/2012	11:37:48	NOK
	<input checked="" type="checkbox"/>	1	NOK	LOW	N.A.	87	Torque Time	6.60		T/t	08/03/2012	11:41:09	NOK
	<input checked="" type="checkbox"/>	1	NOK	LOW	N.A.	88	Torque Time	7.09		T/t	08/03/2012	11:45:12	NOK
	<input checked="" type="checkbox"/>	1	NOK	HIGH	N.A.	89	Torque Time	20.19		T/t	08/03/2012	11:45:50	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	90	Torque Time	18.68		T/t	08/03/2012	11:46:39	NOK
	<input checked="" type="checkbox"/>	1	OK	OK	N.A.	91	Torque Time	19.63		T/t	08/03/2012	11:48:29	NOK
	<input checked="" type="checkbox"/>	2	OK	OK	OK	92	Torque & Angle	15.79	13	T & A	08/03/2012	13:04:45	N.A.
	<input checked="" type="checkbox"/>	2	NOK	LOW	OK	93	Torque & Angle	14.34	17.5	T & A	08/03/2012	13:06:19	N.A.
	<input checked="" type="checkbox"/>	2	NOK	LOW	HIGH	94	Torque & Angle	13.79	30.8	T & A	08/03/2012	13:06:47	N.A.
	<input checked="" type="checkbox"/>	2	NOK	LOW	LOW	95	Torque & Angle	12.75	0.1	T & A	08/03/2012	13:07:04	N.A.
	<input checked="" type="checkbox"/>	2	NOK	OK	HIGH	96	Torque & Angle	15.99	31.2	T & A	08/03/2012	13:07:21	N.A.
	<input checked="" type="checkbox"/>	2	NOK	OK	LOW	97	Torque & Angle	17.90	0.3	T & A	08/03/2012	13:07:39	N.A.
	<input checked="" type="checkbox"/>	2	NOK	OK	HIGH	98	Torque & Angle	18.39	40.5	T & A	08/03/2012	13:07:55	N.A.
	<input checked="" type="checkbox"/>	2	NOK	OK	LOW	99	Torque & Angle	20.28	0.8	T & A	08/03/2012	13:08:30	N.A.

Click on a column to sort the results according to the column name.

All of the information related to the tightening operation is displayed in the various columns.

If an item has been deleted after the test execution, the related rows with the results are marked as "deleted" (as shown in the first 2 rows of the figure above).

Here are the most important fields:

<b>Pset number</b>	The Pset number as defined in the Pset data.
<b>Status</b>	This is the global status of the test. It is <b>OK</b> when the result has been detected according to the thresholds and limits specified, and if the torque does not exceed the maximum transducer overload.
<b>Torque Status</b>	<p>These fields indicate the result for the torque. If the result is within the torque limits, the status is <b>OK</b>.          If the <i>Check Type</i> in the Pset parameters is set to <i>Angle</i>, the torque status is marked as <b>OK</b> regardless the torque is inside or outside the torque limits specified in the Pset.</p> <p>If the torque goes over the maximum transducer overload the result is marked as <b>HIGH</b>.</p>
<b>Angle Status</b>	<p>These fields indicate the result for the angle. If the result is within the angle limits the status is <b>OK</b>.          If the <i>Check Type</i> in the Pset parameters is set to <i>Torque</i>, the angle status is marked as <b>OK</b> regardless the angle is inside or outside the torque limits specified in the Pset.</p>
<b>Result number</b>	<p>Progressive number automatically assigned by the DWTA to every tightening result.          Min value: 1          Max value: 5000          When 5000 results are stored in the DWTA memory, the new results overwrite the oldest starting from result number 1.</p>
<b>Strategy</b>	Type of test executed.
<b>Torque result and Angle results</b>	Torque and angle values measured by the DWTA.
<b>Date / Time</b>	Fields indicating the date and time of the tightening operation. Date and time are taken from the date and time set on the DWTA
<b>Batch status</b>	If the batch size is left to zero, the <i>Batch status</i> is always <b>OK</b> . If the batch size is set to one or more, the <i>Batch status</i> is <b>OK</b> when all the Psets of the batch are <b>OK</b> .
<b>Unit of Measurement</b>	Unit of measurement.
<b>Result detailed</b>	This field can be very helpful. It explains the reason for a <i>Not OK</i> test.

## 7.1 EXPORT RESULTS TO EXCEL

	Select	Pset number	Status	Torque status	Angle status	Result number	Strategy
	<input checked="" type="checkbox"/>	4	NOK	LOW	N.A.	46	Pulse tool
	<input checked="" type="checkbox"/>	4	OK	OK	N.A.	47	Pulse tool
	<input checked="" type="checkbox"/>	5	OK	OK	LOW	48	Peak Torque
	<input checked="" type="checkbox"/>	5	OK	OK	LOW	49	Peak Torque
	<input checked="" type="checkbox"/>	5	OK	OK	LOW	50	Peak Torque
	<input checked="" type="checkbox"/>	1	OK	OK	OK	1	Click wrench
	<input type="checkbox"/>	1	OK	OK	OK	2	Click wrench

Select the tests to be exported or saved, and using the command **Open with Excel** and **Save to File** you can open this table with Excel and save the results in an Excel (.xls) file, or in a .csv file, or in a .XML file.

**NOTE:** The **.CSV** file is formatted with the semicolon (;) as field separator.

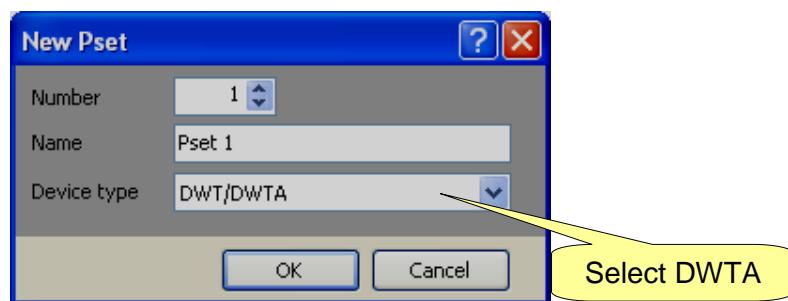
If the .CSV file is not opened automatically with Excel, from the Excel menu select *Data → Import Data*, select the .CSV file, and select the “semicolon” option in the import wizard:



chapter for how to download results from the DWTA to the database.

To work in this mode, disconnect the DWTA from DeltaQC, and select then **Database** menu.

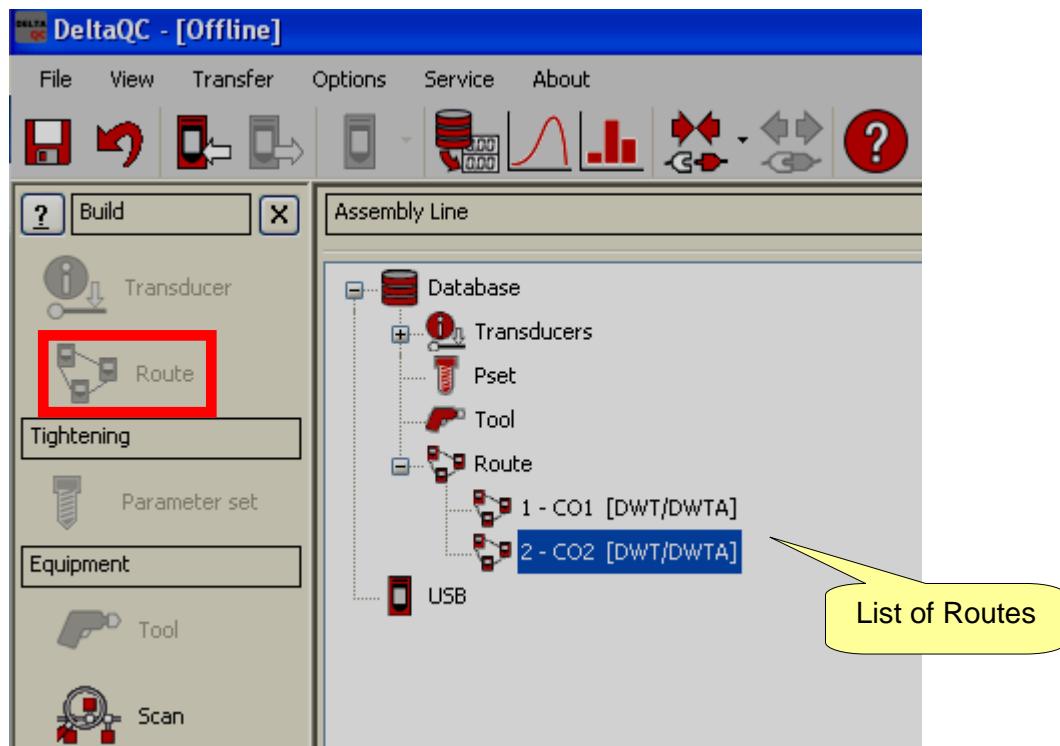
When creating a Pset, an additional field is shown, to select for which device the Pset is assigned:



### 7.1.1 Create a Route

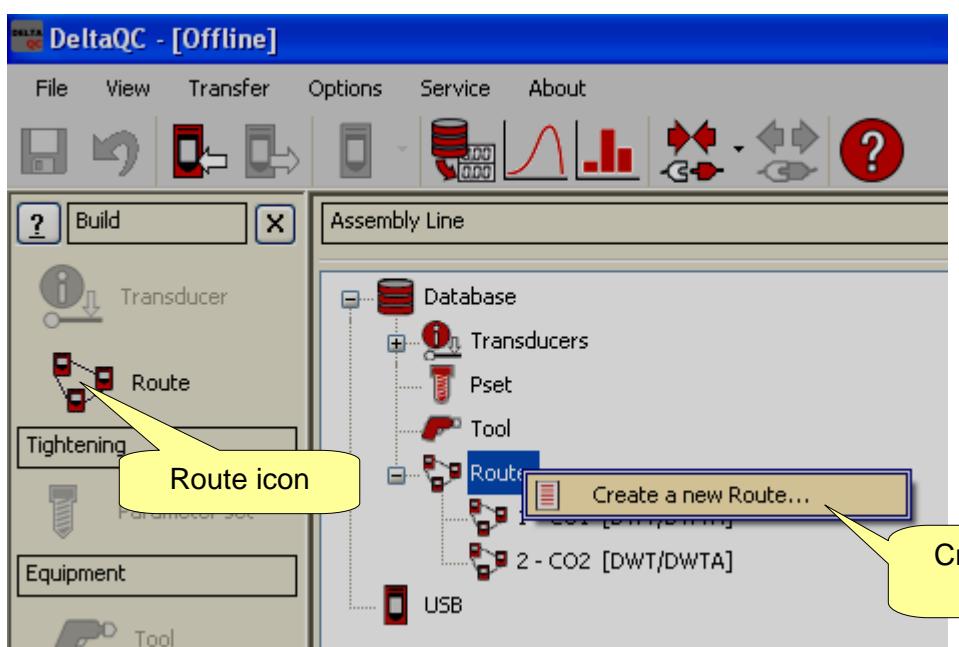
When working offline, it is possible to create up to 32.000 test programs (Pset). The DWTA can store up to 10 Pset. The “Route” is used to select the test programs to be transferred to the DWTA. It is possible to create various Routes (up to 32.000) to transfer different set of test to different DWTA units.

Select the **Route** menu in the Offline area:

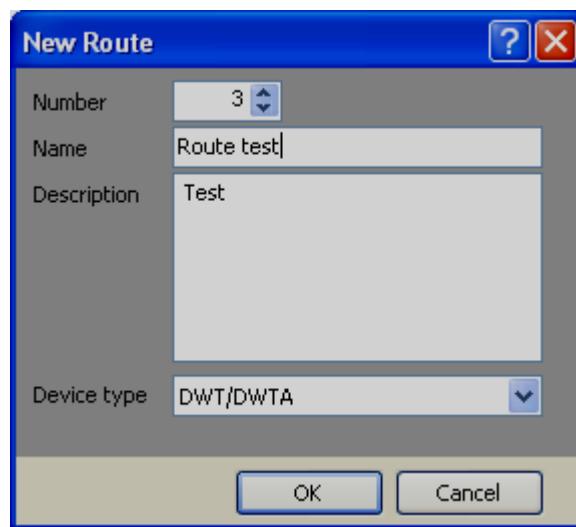


The Routes already created are shown on the right.

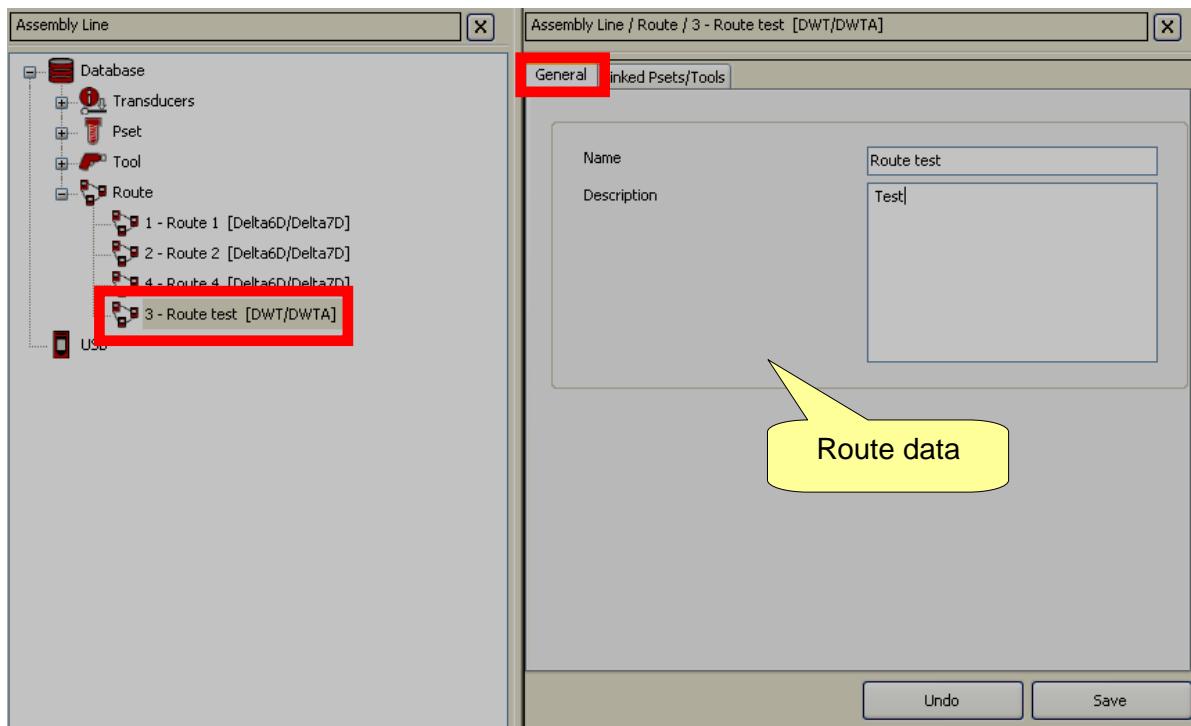
To create a Route, click on the icon in the toolbar, or right-click on **Route**:



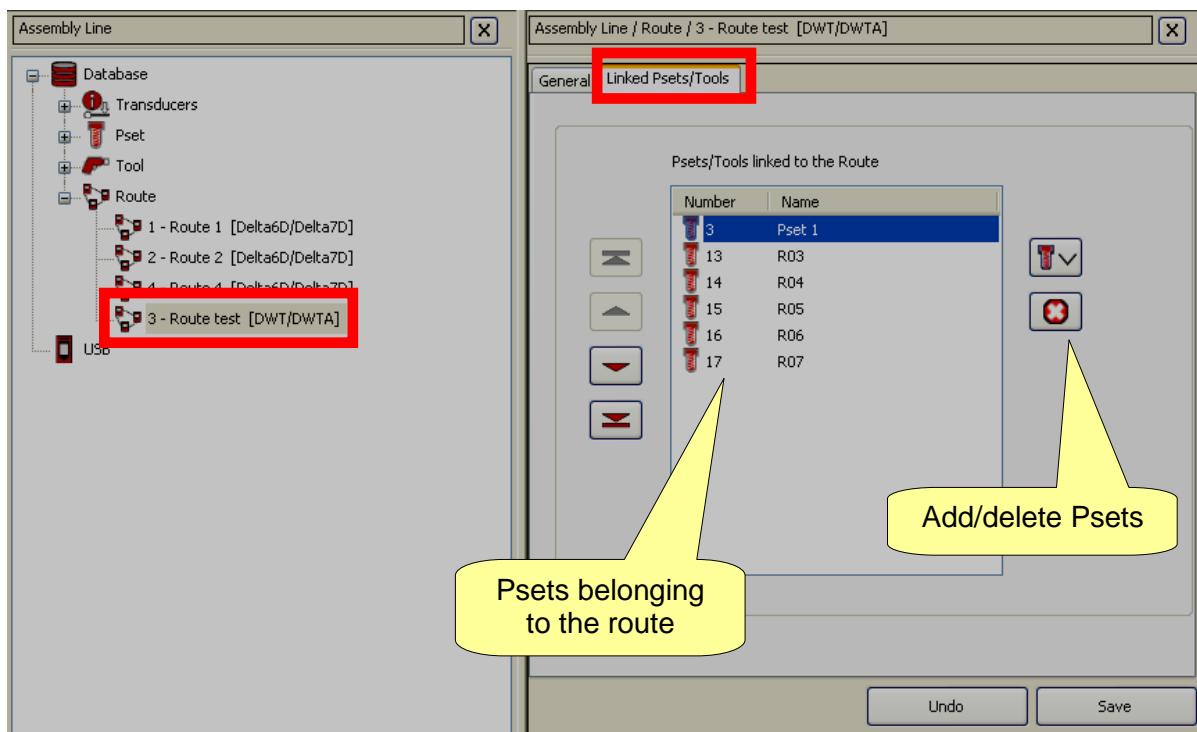
The following window is shown:



Set the **Device type** to DWT / DWTA, enter the **Name** and **Description** and click on **OK** to continue:



Select the **Linked Psets** folder to add (or delete) the Psets to the route:



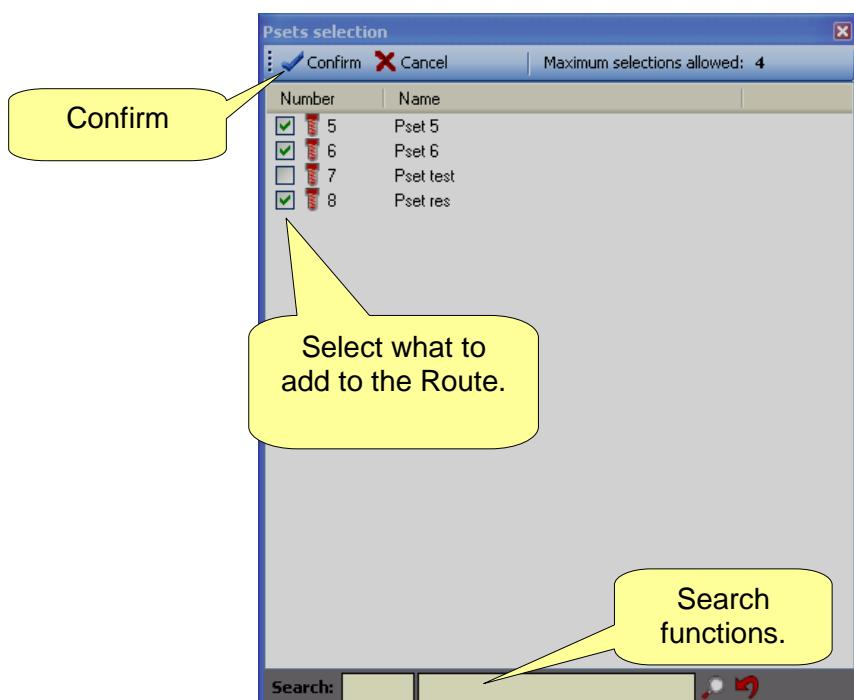
Configure the Route as described below and click on **Store** to save.

Click on the  icon on the right to add Psets to the Routes.

Click on  to delete an item from the Route.

Click on **Save** to save the data.

When adding an item to the Route, the following window is shown:



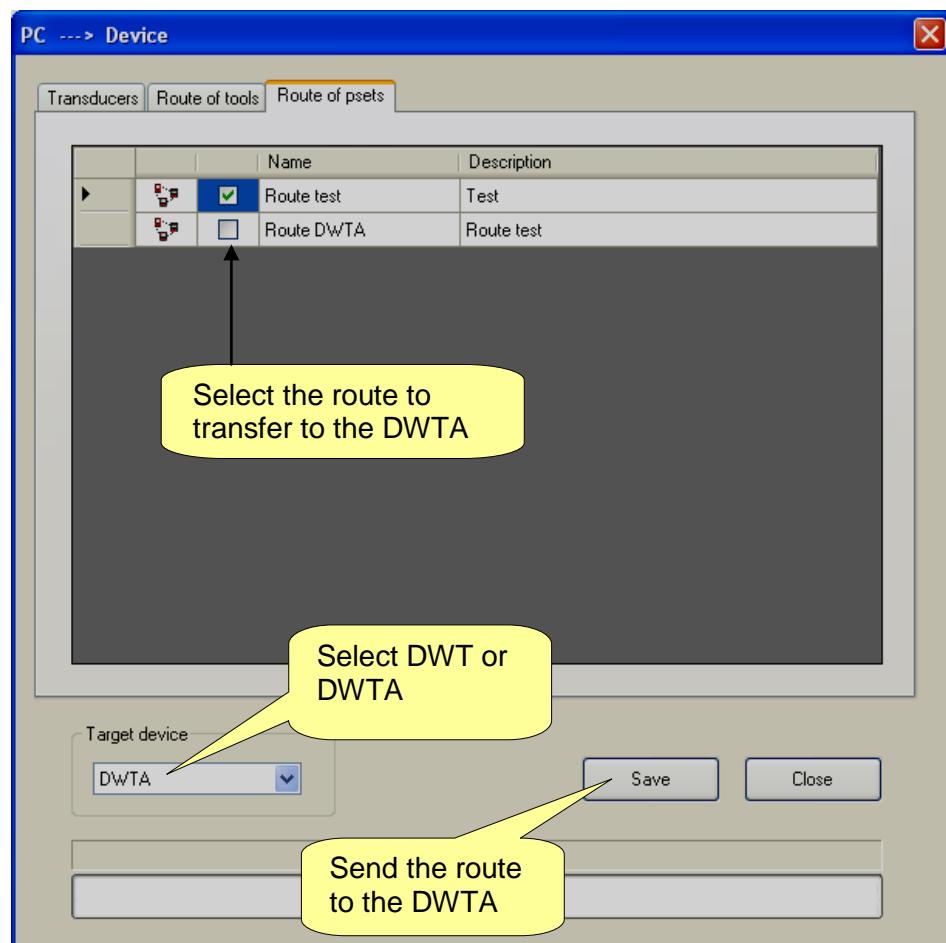
Select what to add to the Route and click on **Confirm** to save.

If a large number of Pset is present in the list, use the search function to filter the list:

It is possible to add up to 10 Pset in a Route.

### 7.1.2 Transfer a Route to the DWTA

Once the Route is defined in the offline mode, click on the icon , or select the **Transfer → PC --> Device** menu to transfer it to the DWTA:



Select the Route and click on confirm to send it to the DWTA.



**NOTE:** When the Route is sent to the DWTA, all of the Psets previously stored in the DWTA memory are deleted! If you want to keep a copy of the existing Psets currently in use on the DWTA, save them to the database before sending the Route to the DWTA. See the *Online mode* chapter for details.

## 8 DWTA Settings

### 8.1 SETTINGS MENU ON DWTA

The **Settings** menu on the wrench display is active only if enabled. See *DWTA controller setup* to enable / disable this menu. The **Diagnostic** menu is covered in the *Troubleshooting guide* chapter of this manual. See the chapter *Appendix B - DWTA factory settings* for the default configuration.

#### 8.1.1 Display Language

To set the wrench display language, select **Settings** → **Language** from the DWTA main menu:



Select the language and confirm with the **OK** button on the keyboard.

It is also possible to set the language through DeltaQC. See the *DWTA controller setup* chapterSetting the DWTA display language.

#### 8.1.2 Date - time

To set the DTWA date and time, select **Settings** → **Insert Date-Time** from the DWTA main menu:



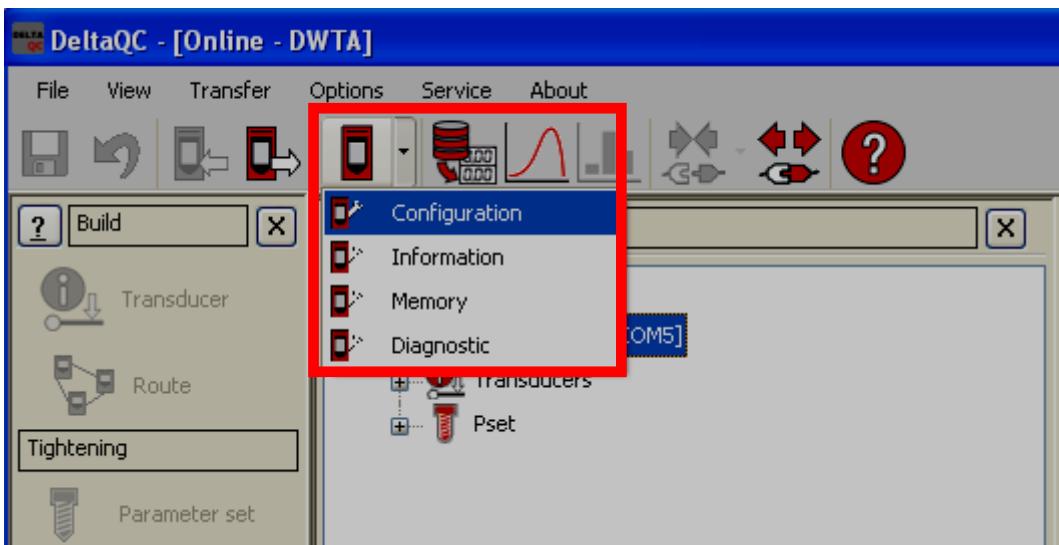
Use the right/left arrows on the keyboard to choose the field to edit, and use the up/down arrows to increase/decrease the selected field.

To select between *European* and *American* date format, select **Settings** → **Date** menu.

## 8.2 DWTA CONTROLLER SETUP



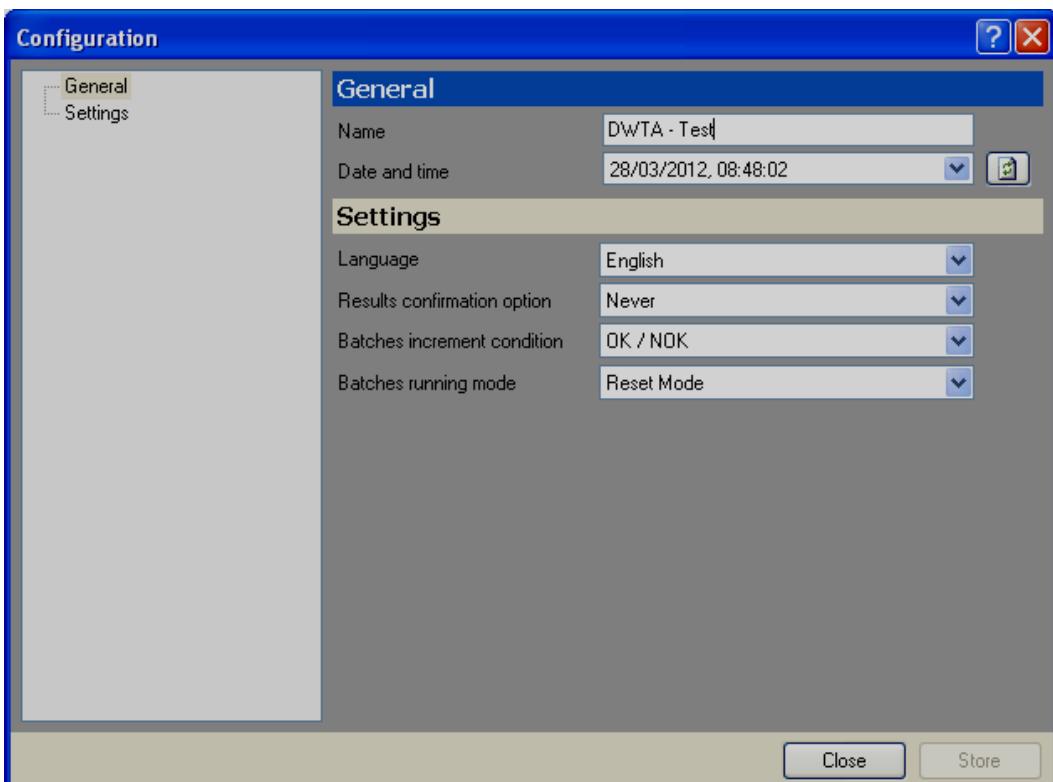
The **Controller** accesses the instrument settings:



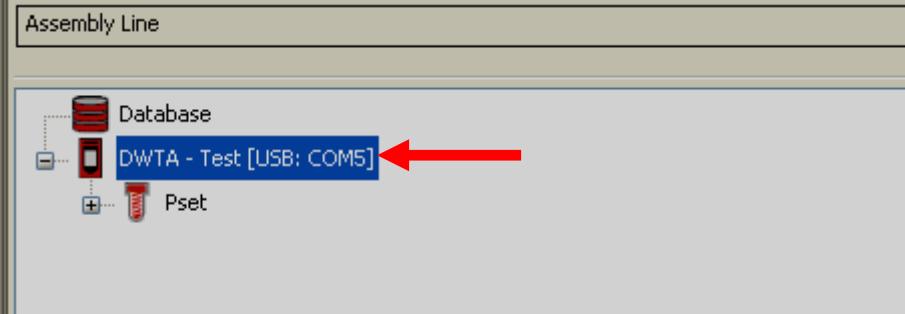
The DWTA must be connected to the DeltaQC to access this menu.  
For details of the **Diagnostic** menu, see the *DWTA Diagnostic* chapter.

### 8.2.1 Configuration

By selecting the **Configuration** submenu the following window is shown:



### 8.2.1.1 Settings DWTA name

<b>Name</b>	Name which is reported in the Assembly line area of the DeltaQC:  
-------------	--

### 8.2.1.2 Settings DWTA date and time

<b>Date and time</b>	Date and time shown on the main menu of the wrench display. This date and time are associated to the tightening results and traces.  Click on  to align the wrench date and time to the date and time of your PC connected to the wrench.
----------------------	--

### 8.2.1.3 Setting the DWTA display language

<b>Language</b>	Select the language of the DWTA menu. This is also possible from the wrench <b>Settings</b> menu (See the chapter <i>Settings menu on DWTA</i> )  The <b>Settings</b> menu on the wrench display is active only if enabled. See <i>DWTA controller setup</i> to enable / disable this menu.
-----------------	---

### 8.2.1.4 Set result confirmation options

<b>Results confirmation option</b>	Select between: <ul style="list-style-type: none"><li>▪ <b>Never</b>: All of the tests executed are acquired as test result.</li><li>▪ <b>Always</b>: At the end of each test, the DWTA asks if the result must be considered or discarded.</li><li>▪ <b>NOK only</b>: At the end of each <i>Not OK</i> test, the DTWA asks if the result must be considered or discarded. If the result is discarded, the batch count (if enabled) is not incremented.</li></ul>
------------------------------------	---

### 8.2.1.5 Set batch increment condition

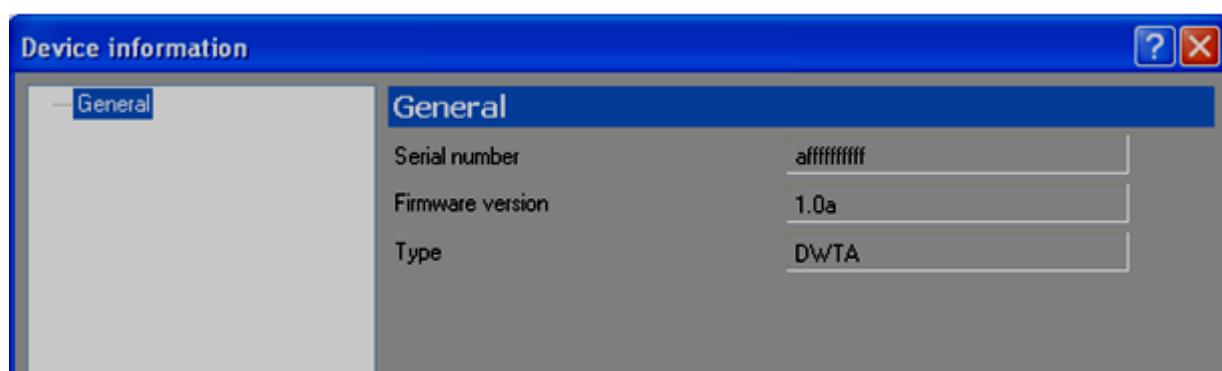
<b>Batches increment condition</b>	Selects if the batch number for a Pset/Multistage is incremented only if the result is OK, or if it is incremented anyway, regardless of the result (OK + NOK).
------------------------------------	---

### 8.2.1.6 Set the batches running mode

<b>Batches running mode</b>	<p>This parameter is used only for Quality Control strategies and it is not applicable to Production strategies.</p> <p>Select between:</p> <ul style="list-style-type: none"> <li>▪ <b>Reset mode:</b> When a batch is quit the batch count is reset.</li> <li>▪ <b>Restore mode:</b> When a batch is quit the batch count is not reset, and it is possible to continue the batch at a later time:</li> </ul>
-----------------------------	--

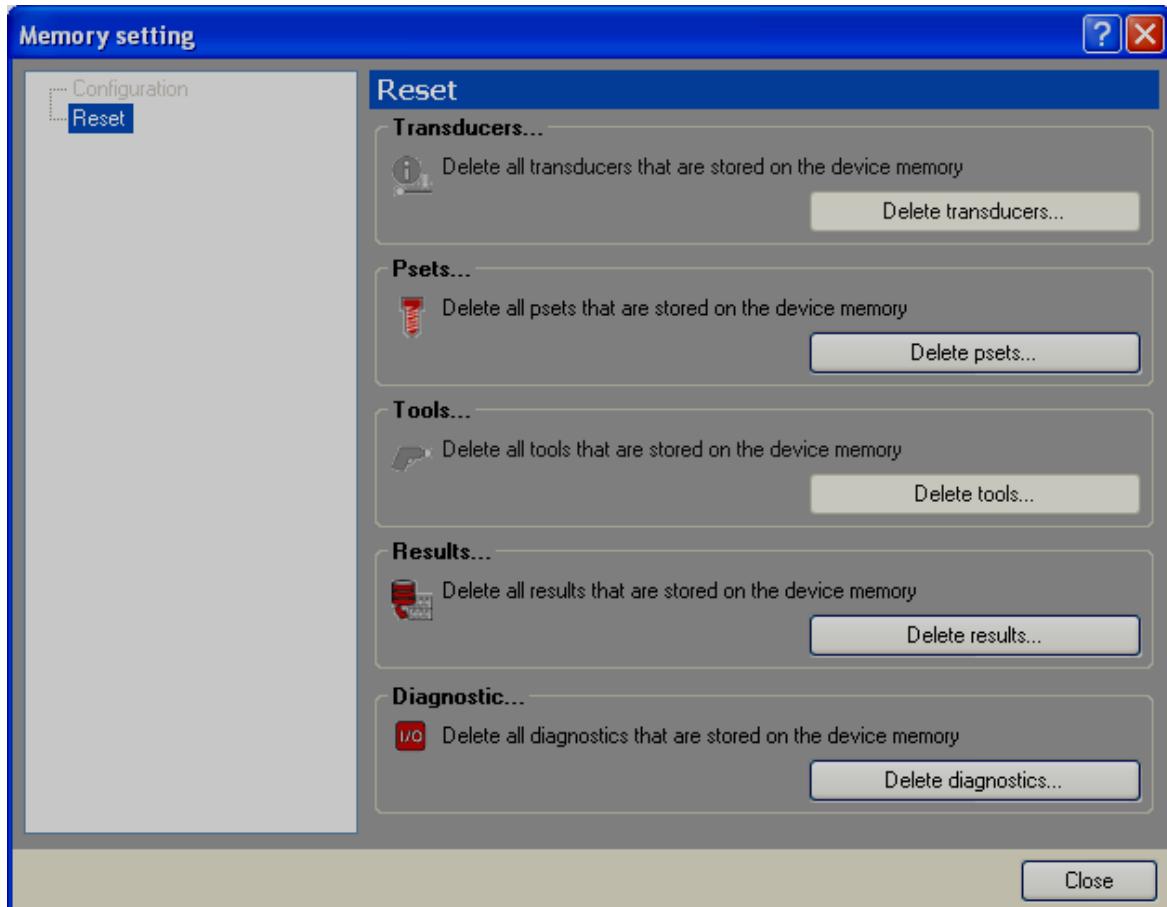
## 8.2.2 Information

This window provides some general information:



### 8.2.3 Memory

From this menu is possible to delete the Psets, the results and the diagnostic results stored in the DWTa memory.



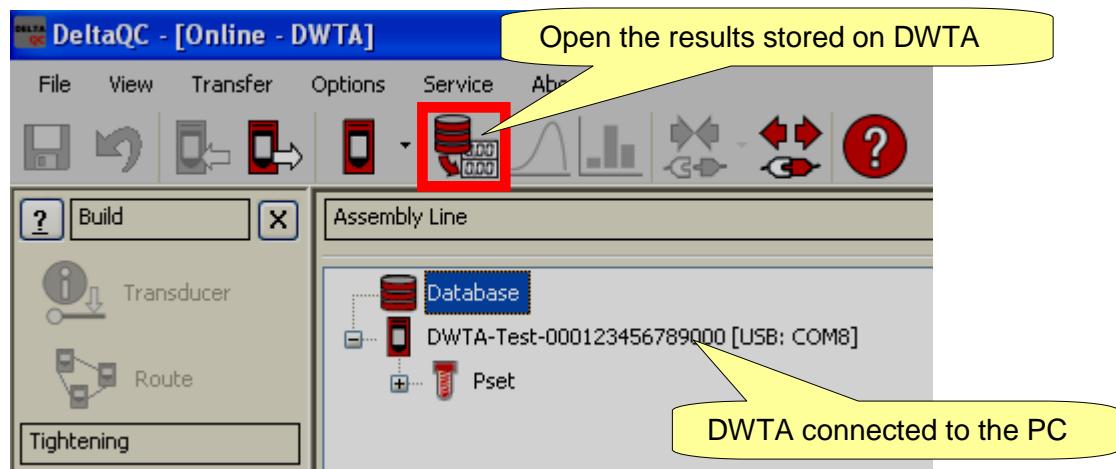
## 9 Results viewer



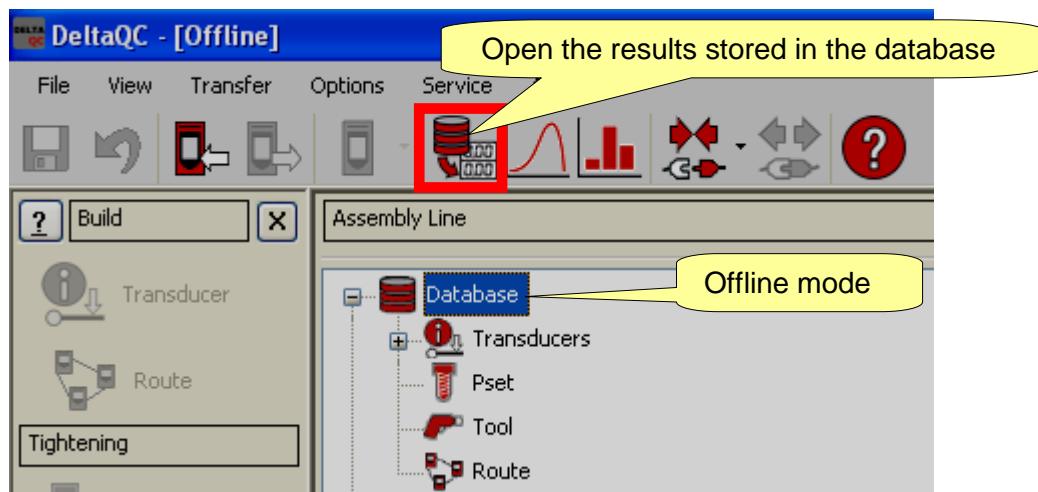
The **Results viewer** function permits to retrieve the results from the DWTA or from the database.

The DWTA can store up to 5000 results; when the memory is full the new results overwrite the oldest results stored.

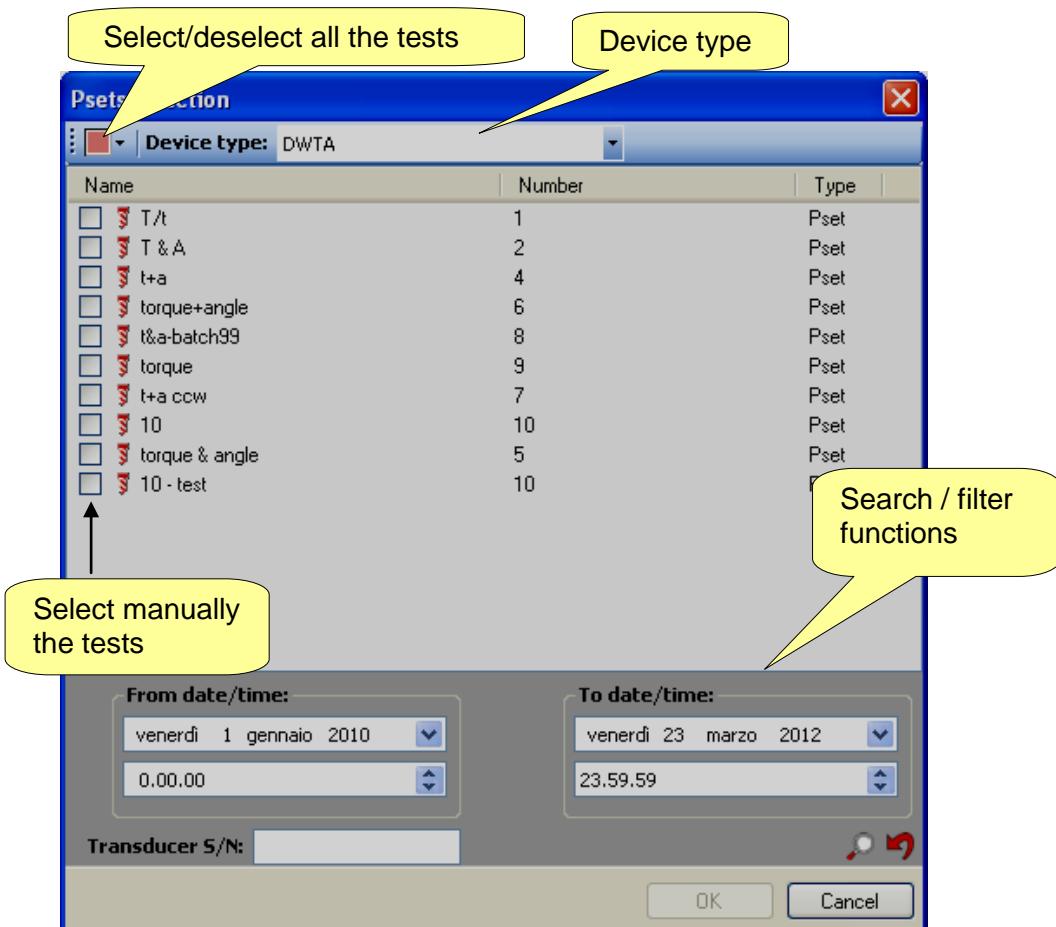
To view the results stored on the DWTA, connect the instrument to the DeltaQC and select the result viewer:



To view the results downloaded from the DWTA and stored in the database, work in offline mode:



When clicking on the **Result Viewer** icon, the following window is shown:



Select what you wish to review and click on **OK**. The following window is shown:

Select	Pset number	Status	Torque status	Angle status	Result number	Strategy	Torque result	Angle result	Description	Date	Time	Batch status
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	76	Torque Time	14,30		T/t	08/03/2012	11:10:35	NOK
<input checked="" type="checkbox"/>	1	NOK	HIGH	N.A.	77	Torque Time	70,31		T/t	08/03/2012	11:11:36	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	78	Torque Time	11,21		T/t	08/03/2012	11:13:32	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	79	Torque Time	11,75		T/t	08/03/2012	11:13:37	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	80	Torque Time	11,89		T/t	08/03/2012	11:13:42	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	81	Torque Time	10,34		T/t	08/03/2012	11:13:45	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	82	Torque Time	12,15		T/t	08/03/2012	11:13:51	OK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	83	Torque Time	10,16		T/t	08/03/2012	11:15:09	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	84	Torque Time	19,95		T/t	08/03/2012	11:15:14	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	85	Torque Time	19,96		T/t	08/03/2012	11:37:01	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	86	Torque Time	19,97		T/t	08/03/2012	11:37:48	NOK
<input checked="" type="checkbox"/>	1	NOK	LOW	N.A.	87	Torque Time	6,60		T/t	08/03/2012	11:41:09	NOK
<input checked="" type="checkbox"/>	1	NOK	LOW	N.A.	88	Torque Time	7,09		T/t	08/03/2012	11:45:12	NOK
<input checked="" type="checkbox"/>	1	NOK	HIGH	N.A.	89	Torque Time	20,19		T/t	08/03/2012	11:45:50	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	90	Torque Time	18,68		T/t	08/03/2012	11:46:39	NOK
<input checked="" type="checkbox"/>	1	OK	OK	N.A.	91	Torque Time	19,63		T/t	08/03/2012	11:48:29	NOK
<input checked="" type="checkbox"/>	2	OK	OK	OK	92	Torque & Angle	15,79	13	T & A	08/03/2012	13:04:45	N.A.
<input checked="" type="checkbox"/>	2	NOK	LOW	OK	93	Torque & Angle	14,34	17,5	T & A	08/03/2012	13:06:19	N.A.
<input checked="" type="checkbox"/>	2	NOK	LOW	HIGH	94	Torque & Angle	13,79	30,8	T & A	08/03/2012	13:06:47	N.A.
<input checked="" type="checkbox"/>	2	NOK	LOW	LOW	95	Torque & Angle	12,75	0,1	T & A	08/03/2012	13:07:04	N.A.
<input checked="" type="checkbox"/>	2	NOK	OK	HIGH	96	Torque & Angle	15,99	31,2	T & A	08/03/2012	13:07:21	N.A.
<input checked="" type="checkbox"/>	2	NOK	OK	LOW	97	Torque & Angle	17,90	0,3	T & A	08/03/2012	13:07:39	N.A.
<input checked="" type="checkbox"/>	2	NOK	OK	HIGH	98	Torque & Angle	18,39	40,5	T & A	08/03/2012	13:07:55	N.A.
<input checked="" type="checkbox"/>	2	NOK	OK	LOW	99	Torque & Angle	20,28	0,8	T & A	08/03/2012	13:08:30	N.A.

Click on a column to sort the results according to the column name.

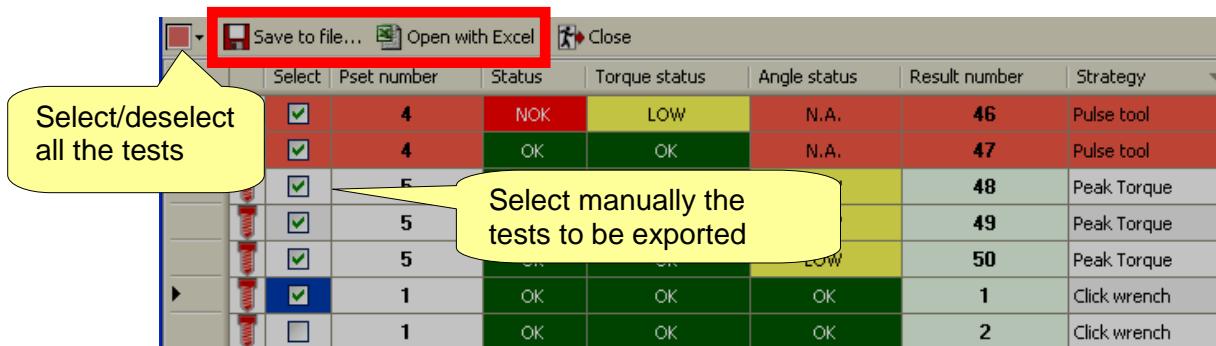
All of the information related to the tightening operation is displayed in the various columns.

If an item has been deleted after the test execution, the related rows with the results are marked as "deleted" (as shown in the first 2 rows of the figure above).

Here are the most important fields:

<b>Pset number</b>	The Pset number as defined in the Pset data.
<b>Status</b>	This is the global status of the test. It is <b>OK</b> when the result has been detected according to the thresholds and limits specified, and if the torque does not exceed the maximum transducer overload.
<b>Torque Status</b>	<p>These fields indicate the result for the torque. If the result is within the torque limits, the status is <b>OK</b>.</p> <p>If the <i>Check Type</i> in the Pset parameters is set to <i>Angle</i>, the torque status is marked as <b>OK</b> regardless the torque is inside or outside the torque limits specified in the Pset.</p> <p>If the torque goes over the maximum transducer overload the result is marked as <b>HIGH</b>.</p>
<b>Angle Status</b>	<p>These fields indicate the result for the angle. If the result is within the angle limits the status is <b>OK</b>.</p> <p>If the <i>Check Type</i> in the Pset parameters is set to <i>Torque</i>, the angle status is marked as <b>OK</b> regardless the angle is inside or outside the torque limits specified in the Pset.</p>
<b>Result number</b>	<p>Progressive number automatically assigned by the DWTA to every tightening result.</p> <p>Min value: 1</p> <p>Max value: 5000</p> <p>When 5000 results are stored in the DWTA memory, the new results overwrite the oldest starting from result number 1.</p>
<b>Strategy</b>	Type of test executed.
<b>Torque result and Angle results</b>	Torque and angle values measured by the DWTA.
<b>Date / Time</b>	Fields indicating the date and time of the tightening operation. Date and time are taken from the date and time set on the DWTA
<b>Batch status</b>	If the batch size is left to zero, the <i>Batch status</i> is always <b>OK</b> . If the batch size is set to one or more, the <i>Batch status</i> is <b>OK</b> when all the Psets of the batch are <b>OK</b> .
<b>Unit of Measurement</b>	Unit of measurement.
<b>Result detailed</b>	This field can be very helpful. It explains the reason for a <i>Not OK</i> test.

## 9.1 EXPORT RESULTS TO EXCEL



Select	Pset number	Status	Torque status	Angle status	Result number	Strategy
<input checked="" type="checkbox"/>	4	NOK	LOW	N.A.	46	Pulse tool
<input checked="" type="checkbox"/>	4	OK	OK	N.A.	47	Pulse tool
<input checked="" type="checkbox"/>	5	OK	OK	OK	48	Peak Torque
<input checked="" type="checkbox"/>	5	OK	OK	OK	49	Peak Torque
<input checked="" type="checkbox"/>	1	OK	OK	OK	50	Peak Torque
<input type="checkbox"/>	1	OK	OK	OK	1	Click wrench
<input type="checkbox"/>	1	OK	OK	OK	2	Click wrench

Select the tests to be exported or saved, and using the command **Open with Excel** and **Save to File** you can open this table with Excel and save the results in an Excel (.xls) file, or in a .csv file, or in a .XML file.



**NOTE:** The **.CSV** file is formatted with the semicolon (;) as field separator.

If the **.CSV** file is not opened automatically with Excel, from the Excel menu select *Data* → *Import Data*, select the **.CSV** file, and select the “semicolon” option in the import wizard:



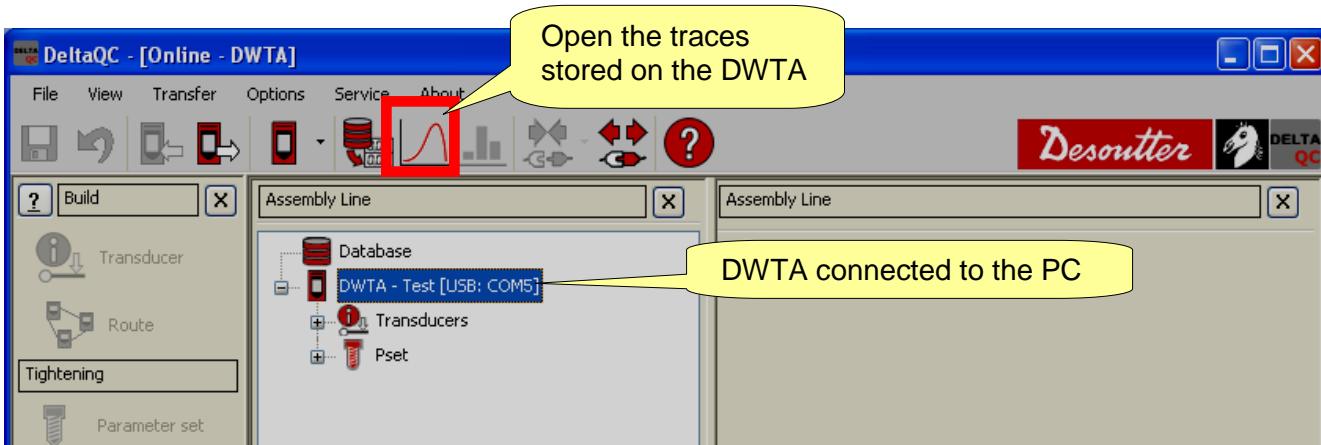
## 10 Traces viewer



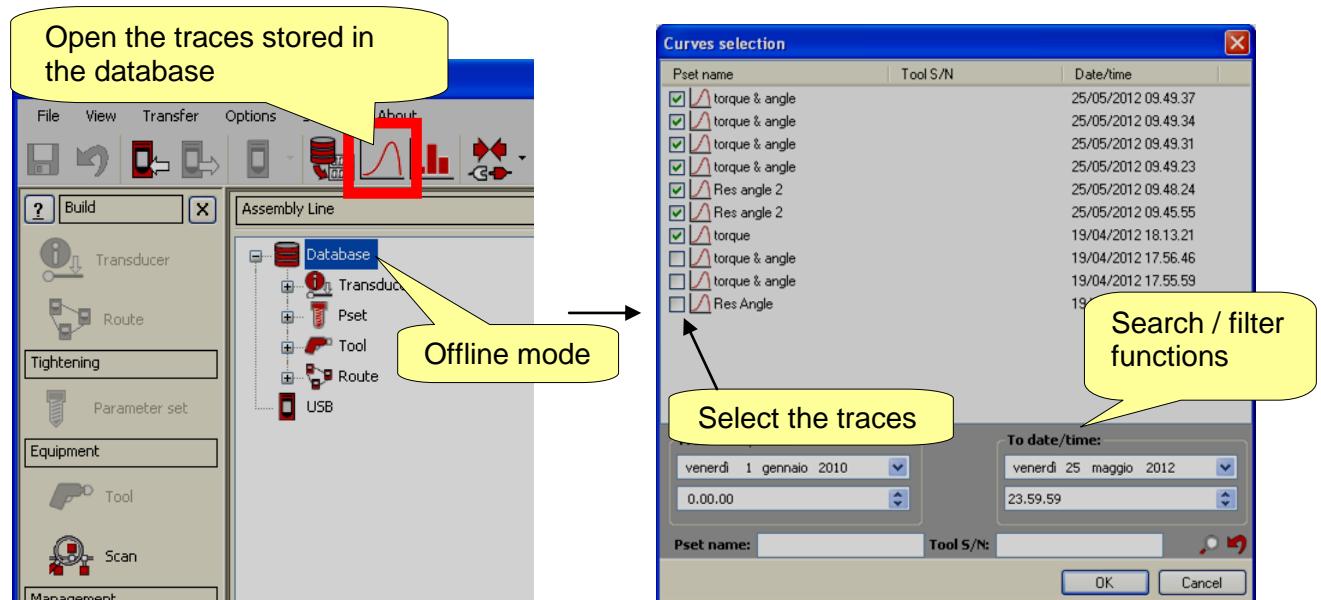
Click on the **Traces viewer** icon to retrieve the trace from the DWTA or from the database.

The DWTA can store up to 10 traces 30 s maximum length each; when the memory is full, the new traces will overwrite the oldest traces stored.

To view the traces stored on the DWTA, connect the instrument to the DeltaQC and select the trace viewer:

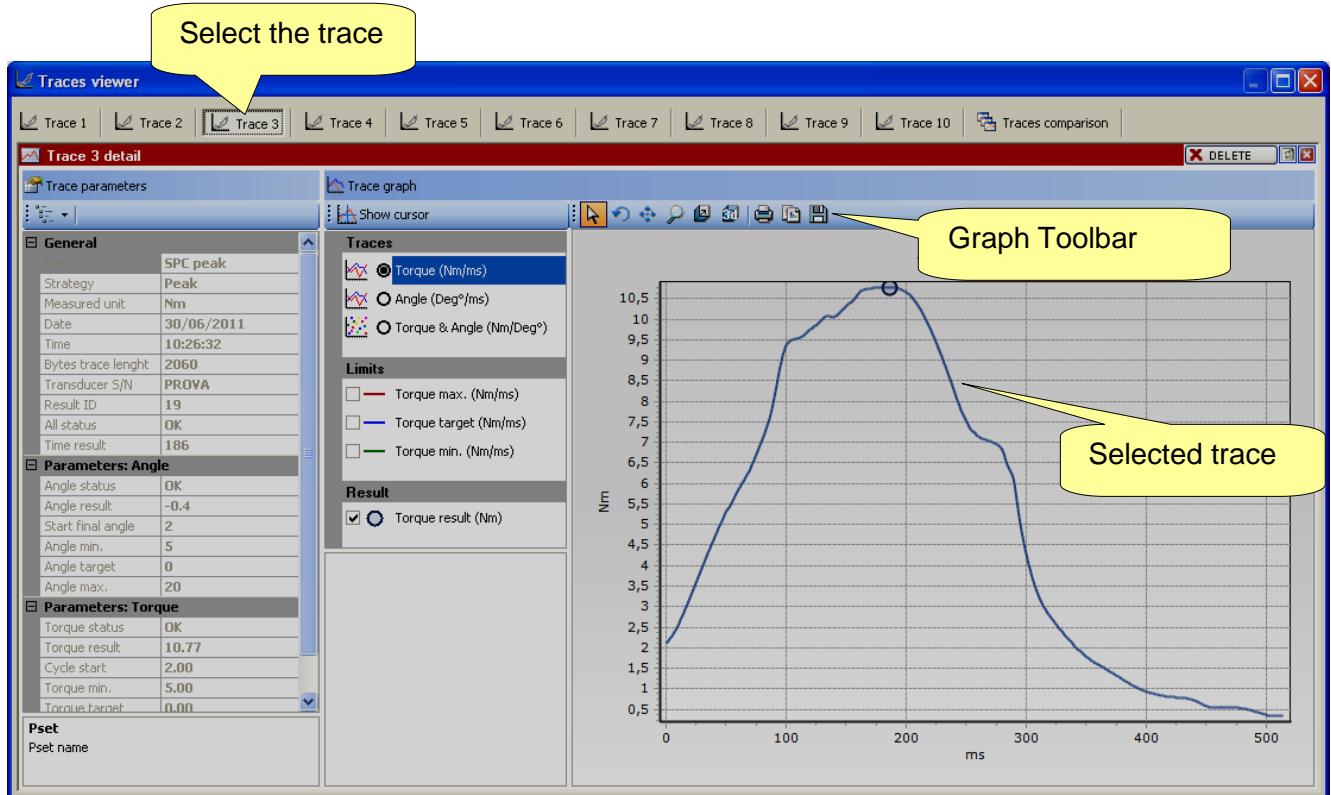


To view the traces downloaded from the DQTA and stored in the database, work in offline mode. An additional window allows to select up to ten traces:



## 10.1 VIEW ONE TRACE

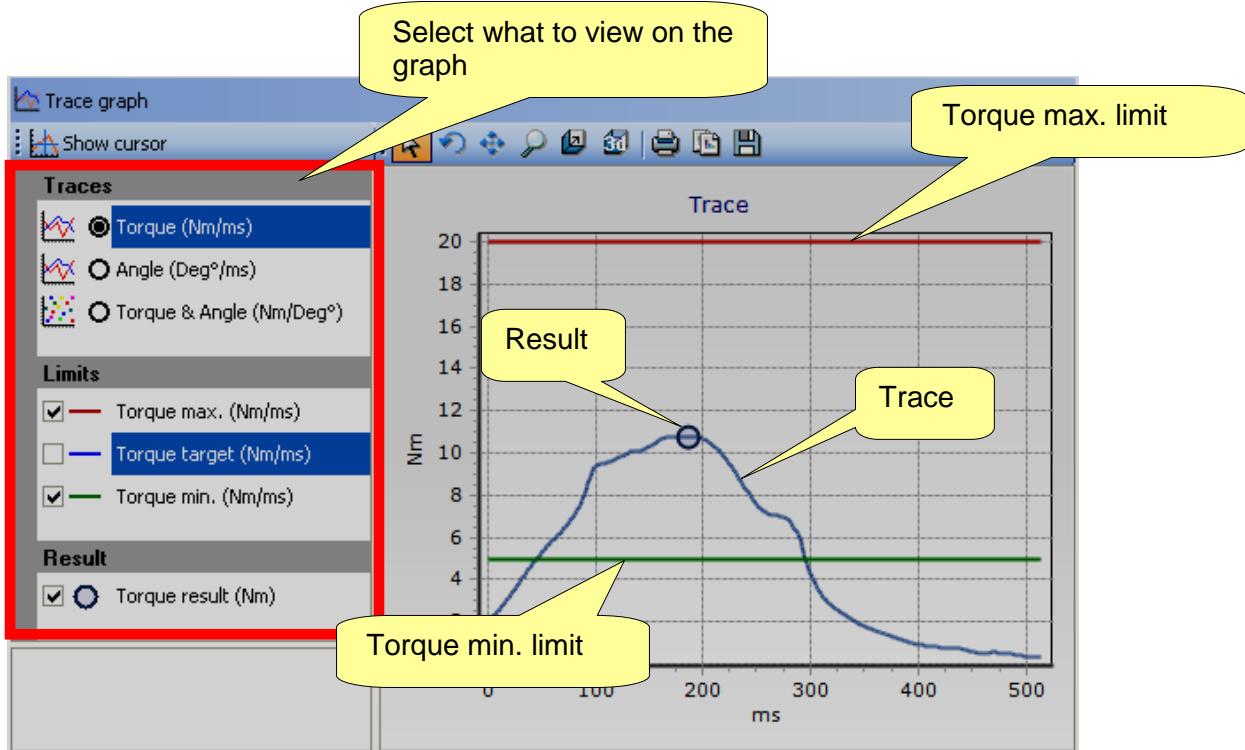
Select the trace to view by clicking on the bar in the top part of the window:



When working online connected to the DWTA the trace related to the last test executed by the DWTA is marked as **Last**.

When working offline the **Delete** command is available on the right-top corner of this window.

In the **Traces**, **Limits** and **Results** areas it is possible to select what to display on the graph:

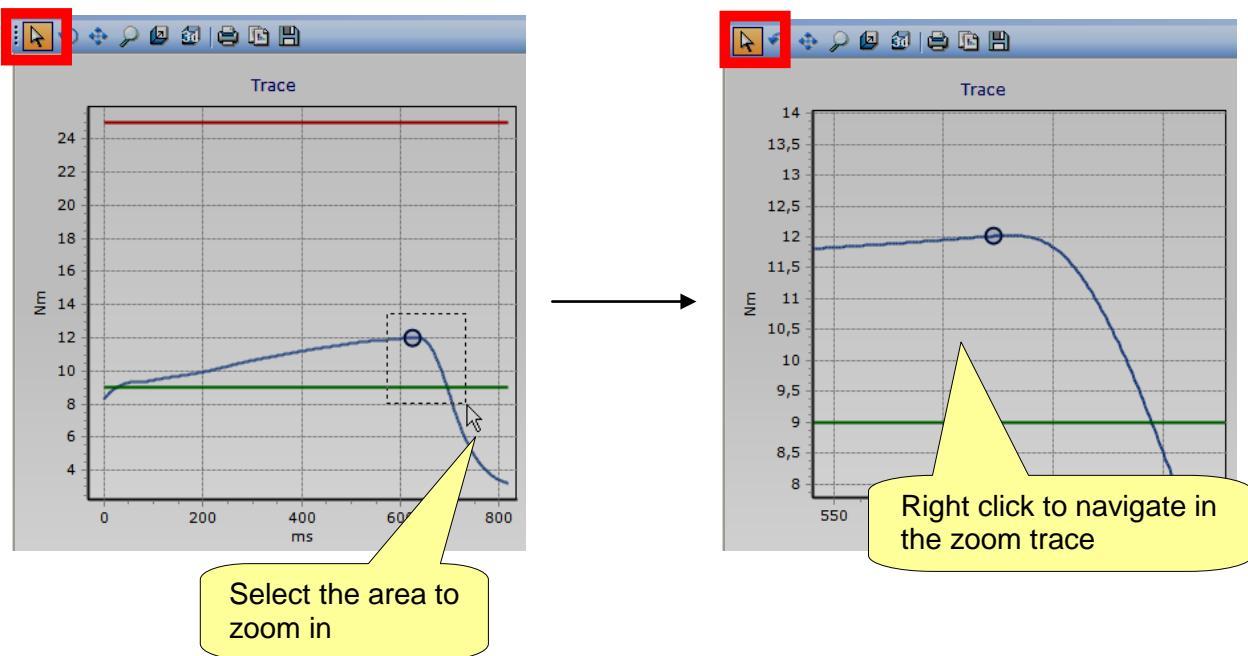


It is possible to select the Torque/Time, Angle/Time or Torque/Angle graphs.

If limits and results are enabled, they are shown in the graph; the **Result** indicates on the trace the point in which the result is taken. If the result is *Not OK*, it will be marked with a red X:

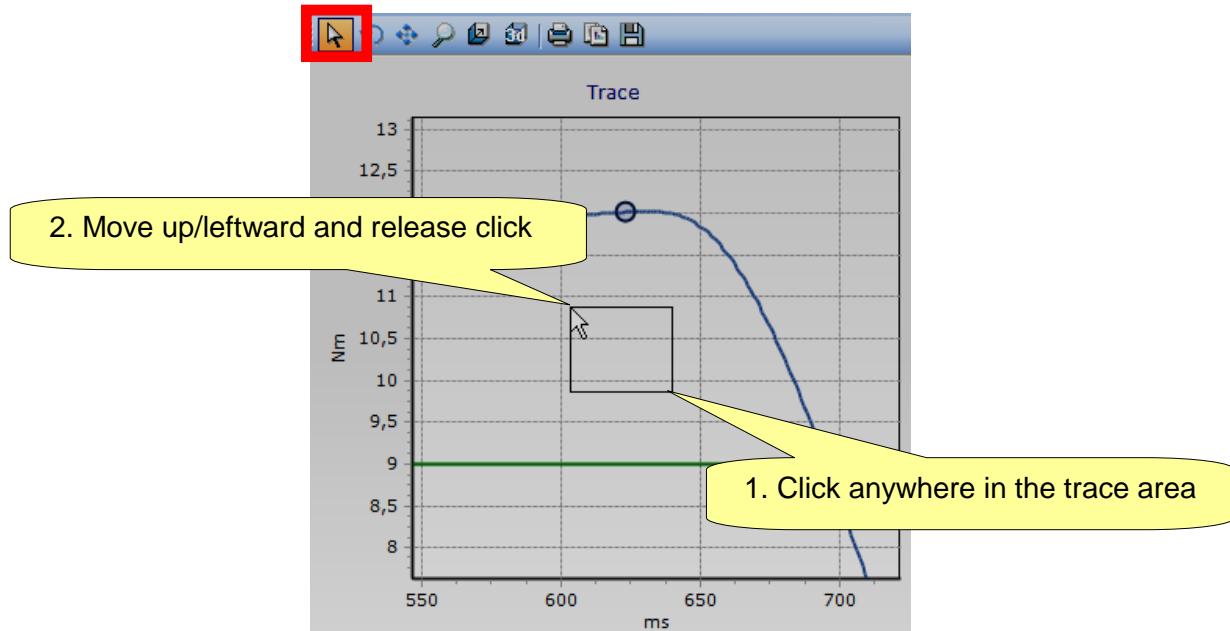


To zoom in on a section of the trace, simply select the desired area with the mouse:



While zoom in, to navigate the graph right click on the trace and move the mouse pointer on the graph.

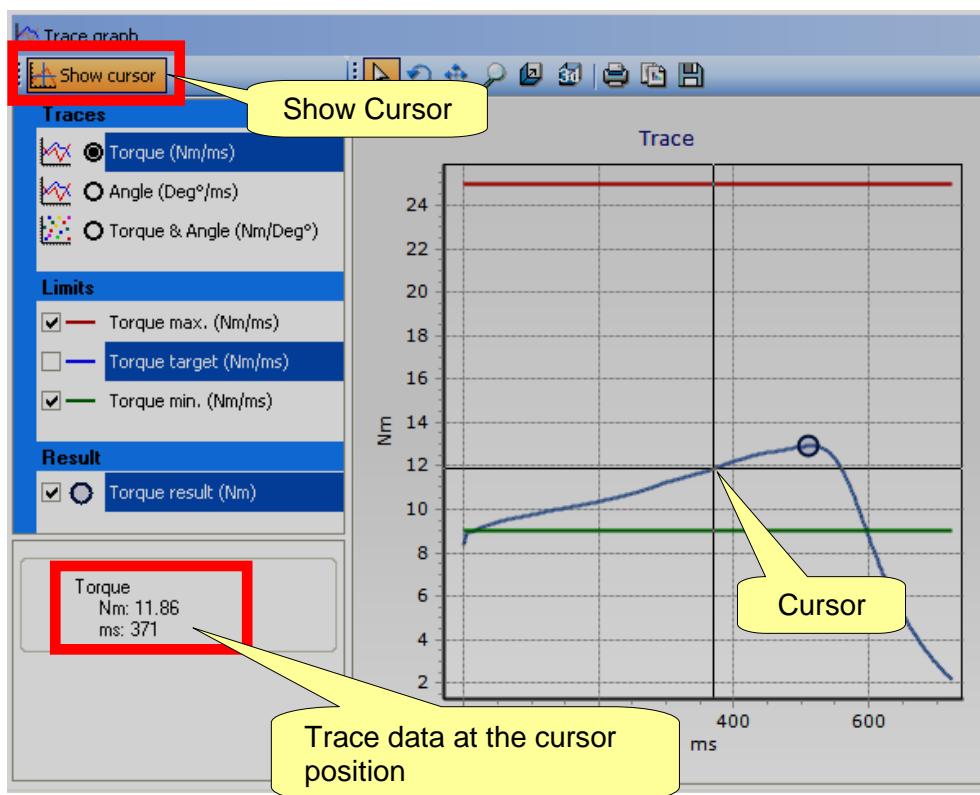
To zoom out to the whole trace, press the left button on the mouse, move the cursor up/leftward, and release the left button:



The **Trace parameters** window displays detailed information on the trace:

Trace parameters	
   	
<b>General</b>	
Pset	SPC peak
Strategy	Peak
Measured unit	Nm
Date	30/06/2011
Time	10:26:36
Bytes trace lenght	1108
Transducer S/N	PROVA
Result ID	20
All status	NOK
Time result	53
<b>Parameters: Angle</b>	
Angle status	OK
Angle result	0.0
Start final angle	2
Angle min.	5
Angle target	0
Angle max.	20
<b>Parameters: Torque</b>	
Torque status	LOW
Torque result	3.58
Cycle start	2.00
Torque min.	5.00
Torque target	0.00
Torque max.	20.00
<b>Pset</b>	
Pset name	

To evaluate the trace in details, click on **Show cursor** to activate the cursor on the graph.



## 10.2 COPY, PRINT AND EXPORT A TRACE

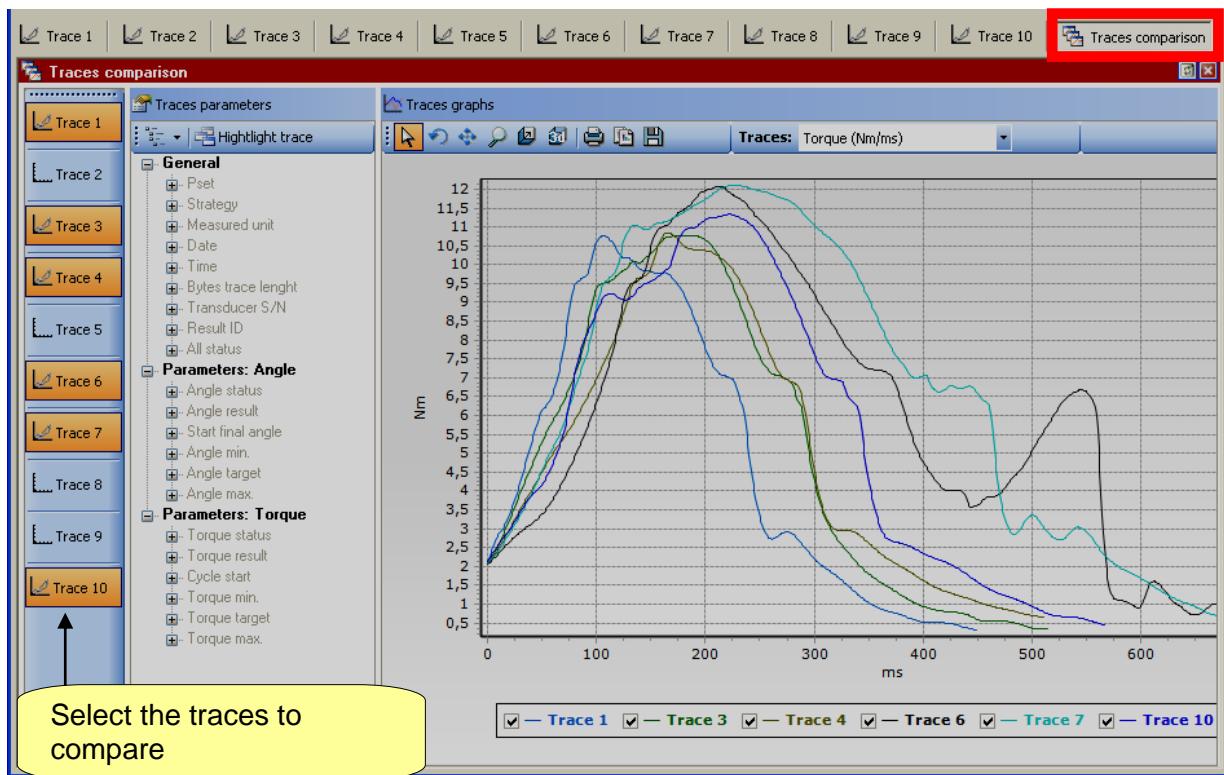
Some useful commands are available in the graph toolbar:

	Print the trace.
	Copy the trace to the clipboard.
	<p>Export trace as image:</p> <p>Select the format to be exported, the size and options, then click on <b>Save...</b> to export the trace.</p>

## 10.3 TRACES COMPARISON

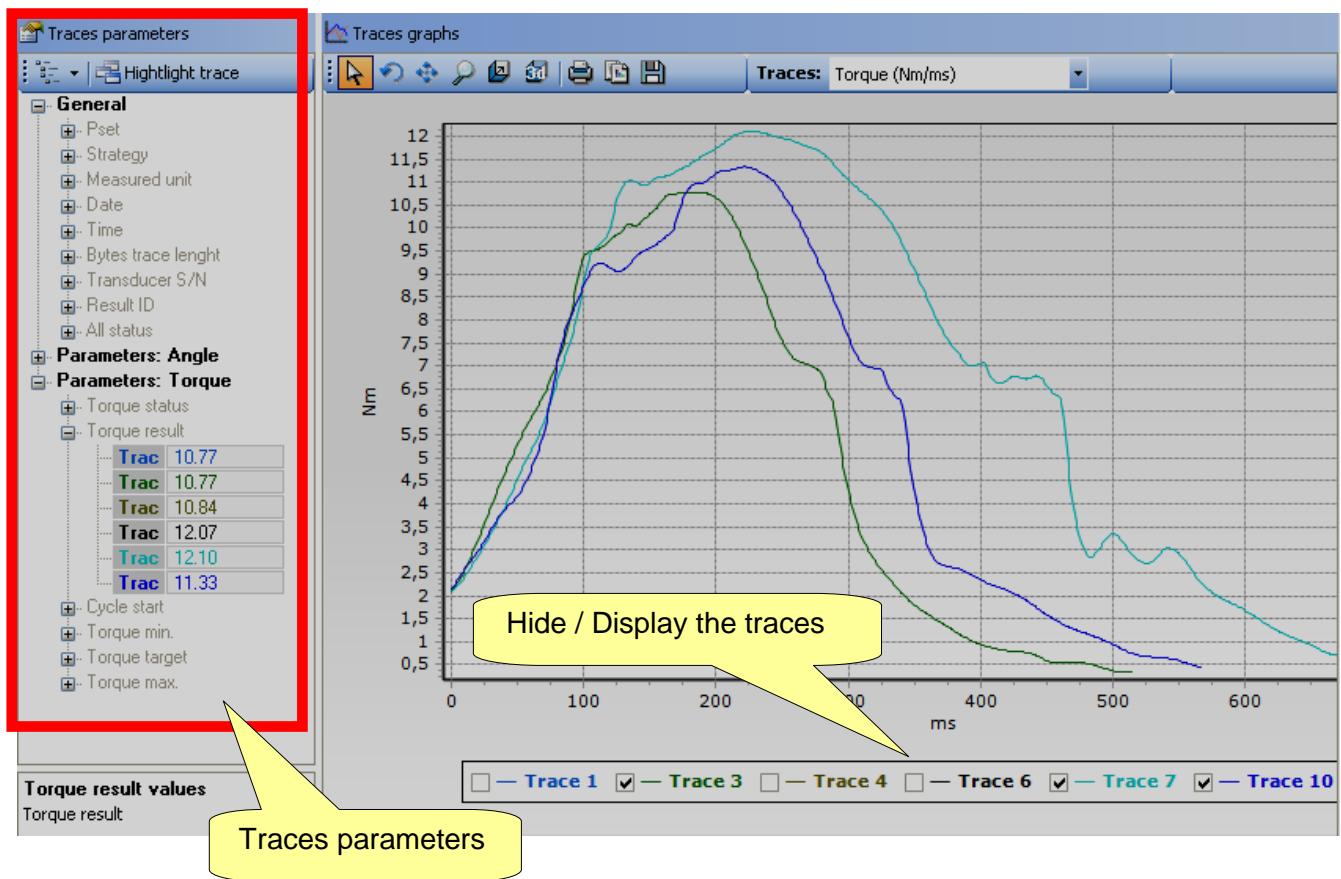
This feature allows to overlap the traces for a comparison of the tightening operations.

Click on **Trace comparison** to open the comparison window:



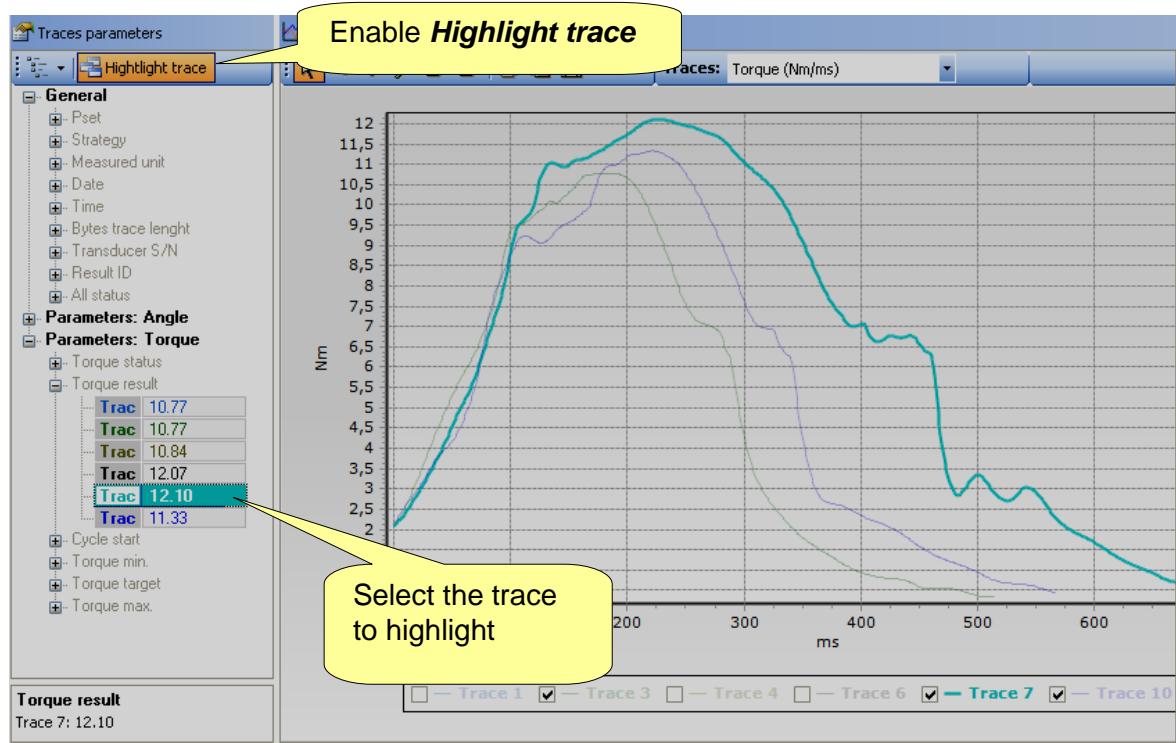
Select on the left side of the screen the traces you wish to compare.

Select the type of graph (Torque/Time, Angle/Time, or Torque/Angle) using the **Traces** scroll window. The selected traces are displayed in the graph. Traces can be displayed or hidden using the selection box displayed under the graph:



In the **Traces parameters** window all the parameters and results of the traces are displayed. Click on the + or – icons to expand or collapse the nodes.

By enabling **Highlight trace** it is possible to highlight a trace in the graph:



## 11 Scheduled Maintenance

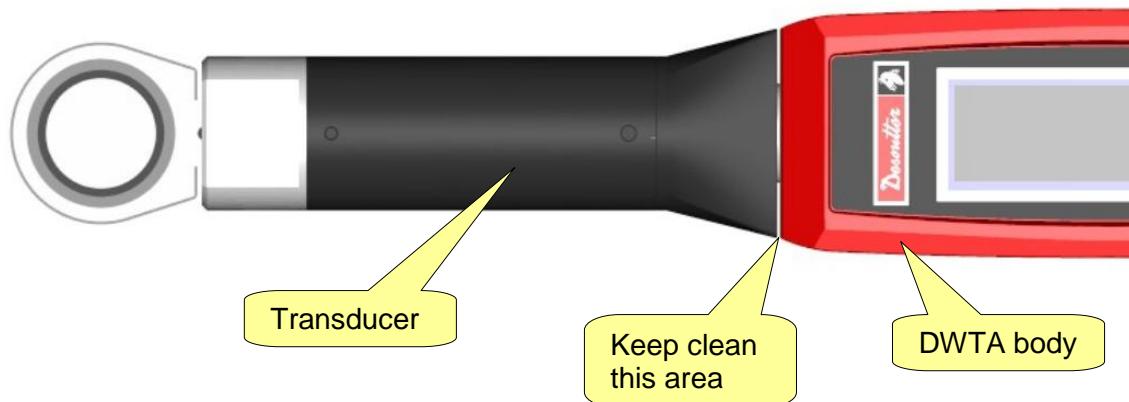
### 11.1 YEARLY CALIBRATION

The DWTA needs to be recalibrated every year. Contact the customer center for calibration.

### 11.2 CLEANING

Keep the DWTA clean.

It is very important to keep clean from any object the area between the DWTA body and transducer shown in the following figure. If not, the transducer may not operate properly, and thus the torque reading may be altered.



After use, remove any traces of oil, grease and dust from the DWTA, especially from the display, the keyboard, and the connectors.

Avoid using harsh detergents to clean the DWTA.

### 11.3 BATTERY PACK MAINTENANCE



**NOTE:** Batteries are used only on DWT/DWTA Vision models.

Keep batteries in a good working mode. In case of a long time of no use, remove batteries from the unit.

For further details about maintenance and safety, refer to the instructions of the supplier of your batteries.

## 12 Troubleshooting guide

Here is a quick troubleshooting guide for the DWTA.

If a problem appears, before taking any action (replacing parts or contacting customer support), be sure to check that the DWTA is being used properly; improper operation can cause defeats even if the system is in good working order.

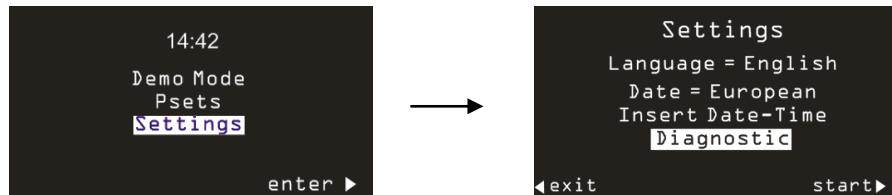
In case of issues, the log file can provide information about the problem; see the chapters *DWTA LOG viewer* and **Errore. L'origine riferimento non è stata trovata.** for details.

Symptom	Possible cause	Solution
Cannot enter the test menu.	- Transducer not connected.	- Connect a valid transducer to the DWTA. Ensure that the cable is also the correct one.
Cannot connect the DeltaQC to the DWTA	- Wrong connection type	- When clicking on the Connect icon, ensure that the USB or Network is selected. Click on the arrow on the right side of the icon to select the connection method.
Test result is always <i>Not OK</i> when testing a tool, or the click-point of a wrench is never detected.	- Ensure to use proper setup	- Check and eventually modify the test setup parameters (the thresholds are the most critical parameters)
<i>"Min Load Error"</i> appears on the DWTA display when starting a test	- Pset and transducer data not matching	- Check both the transducer and the Pset data; they must be compatible to start a test.
<i>"Capacity error"</i> appears on the DWTA display when starting a test	- The transducer has capacity not adequate for the test.	- Use a transducer with higher capacity.
<i>"No Pset available"</i> appears on the DWTA display when selecting a tool	- Tool has not Pset associated	- Associate at least one Pset to the tool.
<i>"No more Psets available"</i> appears on the DWTA display when starting a test	- Tool has been deleted	- Exit the test menu, and create a tool with at least a linked Pset.
<i>"No tool"</i> appears on the DWTA display when accessing the <i>Tools</i> menu	- Tool not defined	- Create at least a tool with a Pset associated to start a test.
<i>"Transducer not suitable for angle testing"</i> appears on the DWTA display.	- Static transducer used for a test in angle	- Connect a transducer with angle measurement.

## 12.1 DWTA DIAGNOSTIC

The diagnostic menu can be used to perform a check of the DWTA hardware.

Select **Diagnostic** from the **Settings** menu to start the diagnostic procedure:



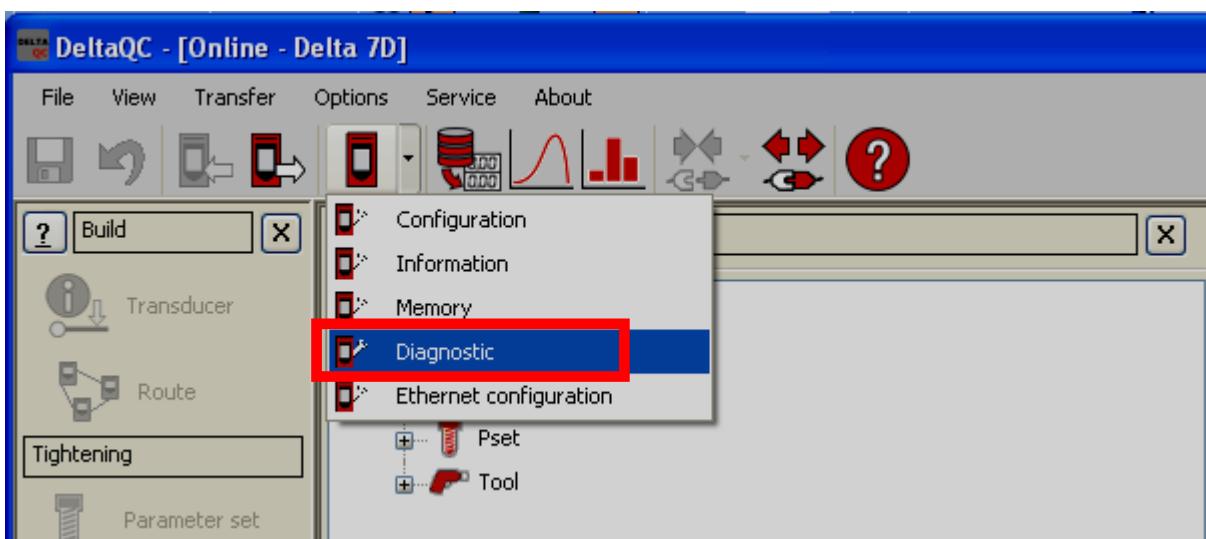
The diagnostic procedure guides the user to check all the DWTA hardware.

The diagnostic procedure is interactive: Simply follow the instructions given on the DWTA display to complete the diagnostic; if a component gives a *Not OK* result during the test, it should be repaired or replaced.

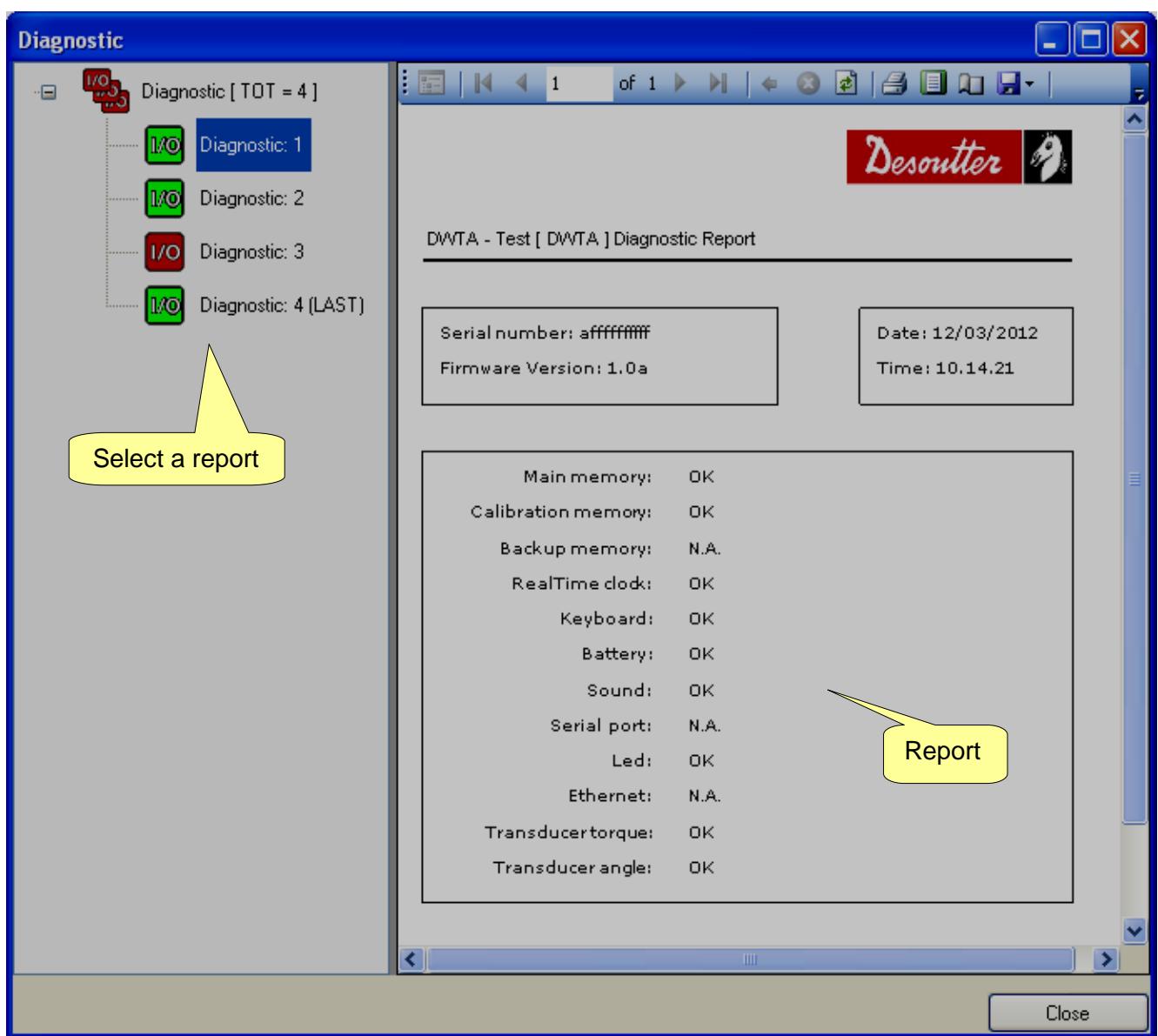


**NOTE:** If the test on some buttons of the DWTA keyboard gives *Not OK* result, all the following tests requiring the operator to use that button to confirm the test result will not be performed, and will be marked as *N.A.* (Not Applicable).

The last ten diagnostic reports are saved in the DWTA memory and can be retrieved by the DeltaQC. Connect the DWTA to the DeltaQC and select the **Controller → Diagnostic** menu:



The following window is shown:



Each report is marked in green if all of the test are *OK* (or not applicable), and is marked in red if at least one test gives a *Not OK* result.

The last report is marked as **LAST**.

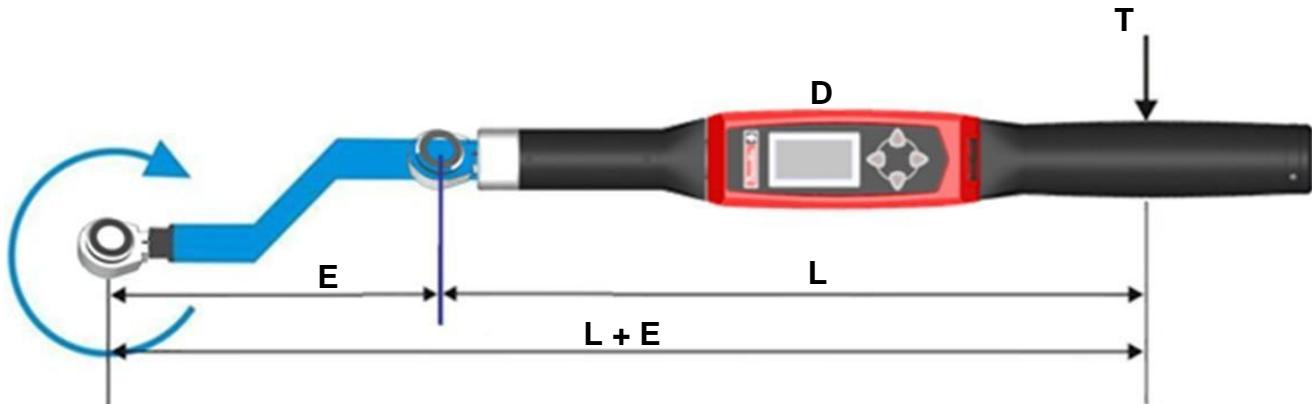
The toolbar in the upper area of the report provides functions to print the report, or export it to Excel or PDF file.

## 13 Appendix A - Calculating correction coefficients for extensions

When the joint design or space limitations preclude use of standard sockets or tools, it may be necessary to use special extension spanners to fit the application.

In these cases the DWTA measure must be adequately compensated because the factory calibration is made for the standard arm (L) and the extension arm (E) increases the measured torque. The angle measure is also affected by the extensions, due to its specific torsion when the torque is applied.

### 13.1 TORQUE CORRECTION COEFFICIENT



$T$	=	applied torque
$D$	=	displayed torque
$L$	=	standard arm (from mid point of the handle to the center point of end fitting tool)
$E$	=	extension arm
$L + E$	=	total arm

From the relation between the displayed and applied torque  $T = \frac{D \times L + E}{L}$ , the torque correction coefficient is given by the following formula:

$$\text{Torque correction coefficient} = \frac{L + E}{L}$$

## 13.2 ANGLE CORRECTION COEFFICIENT

When an extension is used, the angle correction coefficient permits linear compensation of extension torsion due to the torque applied. The value is expressed in degrees at the DWTA capacity.

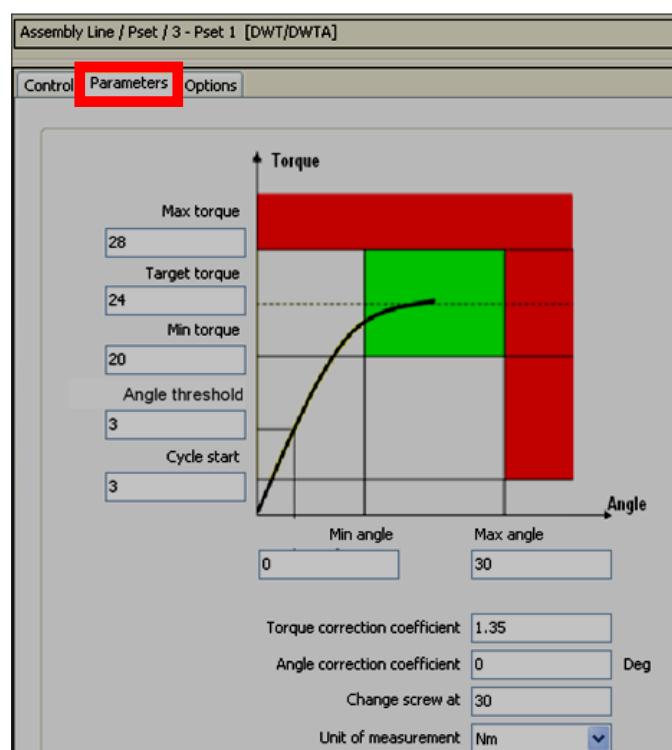
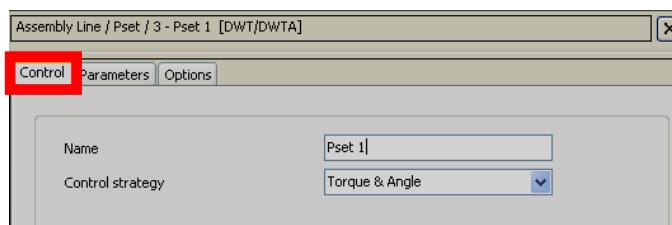
To calculate the proper angle correction coefficient, the torque coefficient of the extension must be already calculated (as described above) and specified in the Pset used for calculating the angle correction coefficient.

Follow this procedure:

1. Create a Pset with the following parameters:

- *Control strategy*: Torque & Angle
- *Torque correction coefficient*: Value calculate as explained above
- *Nominal torque*: 80% of the DWTA capacity
- *Cycle start and Angle threshold*: 10% of the DWTA capacity
- *Minimum angle*: 0
- *Target angle*: 15
- *Maximum angle*: 30
- *Check already tightening angle*: Disabled

For instance, it could be a proper Pset for a DWTA with 30 Nm capacity:



## 2. Execute the Pset:



## 3. Apply the target torque specified in the Pset, operating the DTWA on a static transducer:



## 4. The angle displayed is the bending of the extension applying of the torque shown on the display. Therefore, the Angle Correction Coefficient is given by the formula

$$\text{Angle Correction Coefficient} = \frac{\text{Capacity}}{\text{Torque Measured}} \times \text{Angle Measured}$$

In the example of the figure above, it would be  $(30 / 24.3) \times 2.6 = 3.21$ .

**NOTE:** After having stored the angle correction coefficient, in order to verify the correct operation of the angle coefficient, it is NOT possible to use the demo mode, since the demo mode does not consider the correction coefficients. Therefore, for a verification test a Pset must be used.

### 13.3 CORRECTION FORMULAS

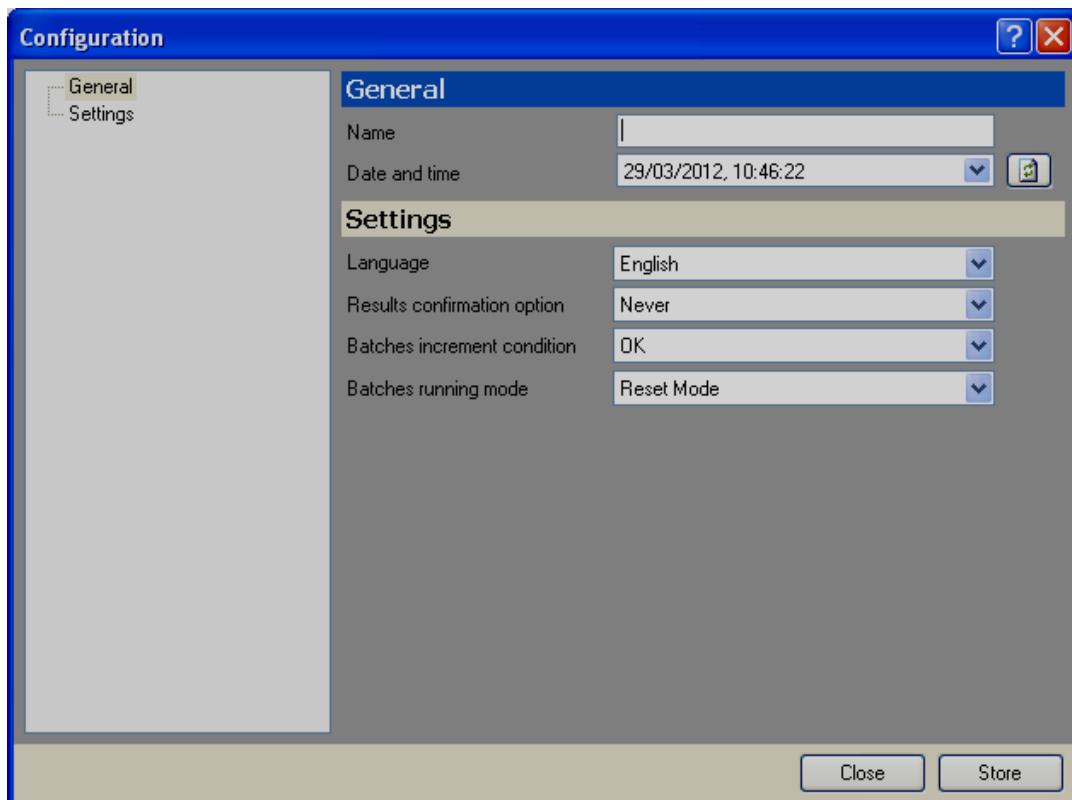
During the tightening, the torque and angle measured by the transducers are corrected to obtain the real torque and angle values, which are displayed on the wrench and used in the tightening traces and results. The correction formulas are:

$$\text{Torque displayed} = \text{Torque measured} \times \text{Torque coefficient}$$

$$\text{Angle displayed} = \text{Angle measured} - \text{Angle Coefficient} \times \frac{\text{Torque measured} - \text{Cycle Start}}{\text{DWTA capacity} - \text{Cycle Start}}$$

## 14 Appendix B - DWTA factory settings

The following table details the DWTA factory configuration:



<b>Name</b>	This field is left blank as factory settings.
<b>Language</b>	<i>English</i>
<b>Result confirmation option</b>	<i>Never</i>
<b>Batches increment condition</b>	<i>OK</i>
<b>Batches running mode</b>	<i>Reset mode</i>

## 15 Abbreviations

Abbreviation	Description	Abbreviation	Description
A	Ampere	N.A.	Not Applicable
AC	Alternating current	Nm	Newton meter
Avg	Average	Nr.	Number
CCW	Counter clockwise	OK	Approved (test)
CW	Clockwise	NOK	Not approved (test)
dBm	Decibel referred to milliwatt	PC	Personal Computer
DC	Direct current	Std	Standard deviation
DRT	Digital rotary transducer	SW	Software
DST	Digital static transducer	USB	Universal Serial Bus
DWT	Digital wrench transducer	V	Volt
EMC	Electromagnetic Compatibility	VIN	Vehicle Identification Number
EMI	Electromagnetic Interference	WEEE	Waste Electrical and Electronic Equipment
ESC	Exit		
FSD	Full scale deflection		
ID	Identification		
IP	Internet Protocol		
LED	Light-Emitting Diode		
Max	Maximum		
Min	Minimum		
ms	millisecond		
n	Numbers (of values)		



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Issue no. 01

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**DEUTSCH (GERMAN)** (1) **EG-KONFORMITÄTSERKLÄRUNG** - (2) Wir, **DESOUTTER** - (3) Technische Datei beim EU - (4) erklären hiermit, daß das (die) Produkt(e) : - (5) Typ(en) : - (6) Produktherkunft - (7) den Anforderungen der EG-Richtlinie zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten - (8) für " **Maschinen** " 2006/42/EG (17/05/06) - (9) für " **Elektromagnetische Störfreiheit** " 2004/108/EG (15/12/04) - (10) für " **Niederspannung** " 2006/95/EG (12/12/06) - entspricht (entsprechen). -(11) geltende harmonisierte Norme(n) - (12) NAME und EIGENSCHAFT des Ausstellers : - (13) Datum :

**NEDERLANDS (DUTCH)** (1) **E.G.-VERKLARING VAN OVEREENSTEMMING** - (2) De firma : **DESOUTTER** -(3) Technisch bestand verkrijgbaar - (4) verkaart hierbij dat het (de) produkt(en) : - (5) type : - (6) Herkomst van het product - (7) in overeenstemming is (zijn) met de vereisten van de richtlijn van de Raad inzake de onderlinge aanpassing van de wetgevingen van de lidstaten betreffende : (8) " **machines** " 2006/42/CEE (17/05/06) - (9) " **elektromagnetische compatibiliteit** " 2004/108/EG (15/12/04) - (10) " **laagspanning** " 2006/95/EG (12/12/06) - (11) geldige geharmoniseerde norm(en) - (12) NAAM en FUNCTIE van de opsteller : - (13) Datum

**SVENSKA (SWEDISH)** (1) **EG-DEKLARATION OM ÖVERENSSTÄMMLESE** - (2) Vi **DESOUTTER** -(3) Teknisk fil tillgänglig från - (4) Förklarar att maskinen : - (5) Maskintyp : - (6) Produktens ursprung - (7) För vilken denna deklaration gäller, överensstämmer med kraven i Ministerrådets direktiv om harmonisering av medlemsstaternas lagar rörande - (8) " **maskiner** " 2006/42/EEG (17/05/06) - (9) " **elektromagnetisk kompatibilitet** " 2004/108/EEG (15/12/04) - (10) " **lägspänning** " 2006/95/EEG (12/12/06) - (11) Harmoniserade standarder som tillämpats : - (12) Utfärdarens namn och befattning : - (13) Datum :

**NORSK (NORWEGIAN)** (1) **EF ERKLÆRING OM OVERENSSTEMMELSE** - (2) Vi **DESOUTTER** -(3) Teknisk dokument tilgjengelig - (4) Erklærer at produktet/produktene : - (5) av type : - (6) Produktets opprinnelse - (7) er i overensstemmelse med de krav som finnes i Ministerrådets direktiver om tilnærming av Medlemsstatenes lover vedrørende : - (8) " **maskiner** " 2006/42/EF (17/05/06) - (9) " **elektromagnetisk kompatibilitet** " 2004/108/EF (15/12/04) - (10) " **lavspenning** " 2006/95/EF (12/12/06) - (11) Harmoniserende standarder som er anvendt : - (12) Utsteders navn og stilling : - (13) Dato :

**DANSK (DANISH)** (1) **EF OVERENSSTEMMELSESERKLÆRING** - (2) Vi **DESOUTTER** -(3) Teknisk dokument kan fås på - (4) erklærer at produktet(erne) : - (5) type : - (6) Produktets oprindelse - (7) er i overensstemmelse med kravene i Rådets Direktiv vedr. tilnærmelse mellem medlemslandenes love for - (8) " **maskiner** " 2006/42/EF (17/05/06) - (9) " **elektromagnetisk kompatibilitet** " 2004/108/EF (15/12/04) - (10) " **lavspænding** " 2006/95/EF (12/12/06) - (11) Gældende harmoniserede standarder : - (12) Udsteder, navn og stilling : - (13) Dato

**SUOMI (FINNISH)** (1) **ILMOITUS YHDENMUKAISUDESTA EY** - (2) Me **Toiminimi DESOUTTER** -(3) Tekniset tiedot saa EU:n - (4) vakuutamme, että tuote / tuotteet : - (5) typpi(-pit) : - (6) Tekniset tiedot saa EU:n - (7) on / ovat yhdenmukainen(-sia) neuvoston jäsen maiden lainsaädäntöä koskevien direktiivin vaatimusten kanssa, jotka koskevat : - (8) " **koneita** " 2006/42/EY (17/05/06)- (9) " **elektromagneettista yhteensopivuutta** " 2004/108/EY (15/12/04) - (10) " **matalajännitteitä** " 2006/95/EY (12/12/06) - (11) yhdenmukaiset(tu) soveltuva(t) standardi(t) : - (12) ilmoituksen antajan NIMI ja ASEMA - (13) Päiväys

**ESPAÑOL (SPANISH)** (1) **DECLARACION DE CONFORMIDAD CE** - (2) Nosotros **DESOUTTER** -(3) Archivo técnico disponible en - (4) declaramos que el producto : - (5) tipo de máquina : - (6) Origen del producto - (7) es conforme a los requisitos de la Directiva del Consejo sobre la aproximación de las leyes de los Estados Miembros con relación - (8) a la " **maquinaria** " 2006/42/CE (17/05/06) - (9) a la " **compatibilidad** " 2004/108/CE (15/12/04) - (10) a la " **baja tensión** " 2006/95/CE (12/12/06) - (11) normas armonizadas aplicadas : - (12) Nombre y cargo del expedidor : - (13) Fecha

**PORUGUÊS (PORTUGUESE)** (1) **DECLARAÇÃO DE CONFORMIDADE CE** - (2) Nós **DESOUTTER** -(3) Ficheiro técnico disponível na - (4) declaramos que o produto: - (5) tipo de máquina: - (6) Origem do produto - (7) está em conformidade com os requisitos da Directiva do Conselho, referente às legislações dos Estados-membros relacionados com: - (8) " **maquinaria** " 2006/42/CE (17/05/06) - (9) " **compatibilidade electromagnética** " 2004/108/CE (15/12/04) - (10) " **baixa tensão** " 2006/95/CE (12/12/06) - (11) Normas harmonizadas aplicáveis - (12) Nome e cargo do emissor: - (13) Data:

**ITALIANO (ITALIAN)** (1) **DICHIARAZIONE DI CONFORMITÀ CE** - (2) La Società : **DESOUTTER** -(3) File tecnico disponibile dal - (4) dichiara che il(i) prodotto(i): - (5) tipo: - (6) Origine del prodotto - (7) è (sono) in conformità con le esigenze previste dalla Direttiva del Consiglio, sulle legislazioni degli Stati membri relative: - (8) alle " **macchine** " 2006/42/CE (17/05/06) - (9) alla " **compatibilità elettromagnetica** " 2004/108/CE (15/12/04) - (10) alla " **bassa tensione** " 2006/95/CE (12/12/06) - (11) norma(e) armonizzat(e) applicabile(i): - (12) NOME e FUNZIONE del dichiarante - (13) Data

**ΕΛΛΗΝΙΚΑ (GREEK)** (1) \_ΗΑ ΣΗ ΠΙΣΤΟΤΗΤΑΣ ΕΚ – (2) Η εταιρεία : **DESOUTTER** -(3) Τεχνικός φάκελος διαθέσιμος - (4) δηλώνει υπεύθυνα ότι το(τα) προϊόν(-ντα) : - (5) τύπου(-ων) : - (6) Προέλευση προϊόντος - (7) είναι σύμφωνο(-α) προς τις απαιτήσεις της Οδηγίας ΤΟΥ Συμβουλίου που αφορά την προσέγγιση των νομοθεσιών των κρατών μελών τις οχετικές με : - (8) τα " **μηχανήματα** " 2006/42/EOK (17/05/06) – (9) την " **ηλεκτρομαγνητική συμβατότητα** " 2004/108/EOK (15/12/04) – (10) τη " **χαμηλή τάση** " 2006/95/EOK (12/12/06) – (11) εφαρμοστέο(-α) εναρμονισμένο(-α) πρότυπο(-α): - (12) ΟΝΟΜΑ και ΑΡΜΟ(ΙΟΤΗΤΑ του δηλούντος: - (13) Ημερομηνία **ČESKY (CZECH)** (1) **PROHLÁŠENÍ**



**SOULADU S PŘEDPISY ES** - (2) My, firma **DESOUTTER** - (3) Technický soubor, dostupný - (4) prohlašujeme, že výrobek (výrobky): - (5) typ přístroje (přístrojů): - (6) Původ výrobku - (7) je v souladu s požadavky směrnic Rady EU o aproximaci práva členských států EU, a to v těchto oblastech: - (8) „**přístroje**“ **2006/42/EC** (17/05/06) - (9) „**Elektromagnetická kompatibilita**“ **2004/108/EC** (15/12/04) - (10) „**Nízké napětí**“ **2006/95/EC** (12/12/06) - (11) *relevantní harmonizované normy*: - (12) Jméno a funkce osoby, která prohlášení vystavila - (13) Datum

hogy a termék(ek) : - (5) géptípus(ok): - (6) A mőszaki leírás az EU-s - (7) megfelel(nek) a tagországok törvényeiben megfogalmazott, alábbiakban szerepli tanácsi irányelvek követelményeinek: - (8) „**Gépek, berendezések**“ **2006/42/EC** (17/05/06) - (9) „**Elektromágneses kompatibilitás**“ **2004/108/EC** (15/12/04) - (10) „**Alacsony feszültségű szabványok**“ **2006/95/EC** (12/12/06) - (11) alkalmazható harmonizált szabvány(ok): - (12) Kibocsátó neve és adatai - (13) Dátum:

**LIETUVIŠKAI (LITHUANIAN)** (1) **EB ATITIKTIOS DEKLARACIJA** - (2) Mes: **DESOUTTER** - (3) Techninius duomenis galite - (4) pareiškiame, kad gaminys(-iai): - (5) mašinos tipas(-ai): - (6) Produkto kilm̄ - (7) atitinka Europos Tarybos Direktyvų reikalavimus d=il valstybių narių įstatymu, susijusių: - (8) su „**mašinomis**“ **2006/42/EB** (17/05/06) - (9) su „**Elektromagnetiniu suderinamumu**“ **2004/108/EB** (15/12/04) - (10) su „**Žemės itampa**“ **2006/95/EB** (12/12/06)), suderinimo - (11) *taikomi harmonizuoti standartai*: - (12) Išdavusio asmens pavard= ir pareigos - (13) Data

**SLOVENŠČINA (SLOVENIAN)** (1) **IZJAVA ES O SKLADNOSTI** - (2) Mi: **DESOUTTER** - (3) Tehnična kartoteka je na voljo - (4) izjavljam, da je izdelek (oznoma izdelki): - (5) vrsta stroja (oznoma vrste): - (6) Izvor izdelka - (7) v skladu z zahtevami direktív Sveta Evrope o približevanju zakonodaje držav članic glede: - (8) „**strojev**“ **2006/42/ES** (17/05/06) - (9) „**Elektromagnetne združljivosti**“ **2004/108/ES** (15/12/04) - (10) „**Nizke napetosti**“ **2006/95/ES** (12/12/06) - (11) *veljavnih harmoniziranih standardov*: - (12) Ime in funkcija izdajatelja - (13) Datum

**POLSKI (POLISH)** (1) **UE -DEKLARACJA ZGODNOŚCI** - (2) My, firma **DESOUTTER** - (3) Plik techniczny jest dostępny w - (4) oświadczamy, że produkt (produkty): - (5) urządzenie typu (typów): - (6) Pochodzenie produktu - (7) jest (są) zgodne z wymogami Dyrektywy Rady, odpowiadającej ustawodawstwu krajów członkowskich i dotyczącej: - (8) „**maszyn i urządzeń**“ **2006/42/UE** (17/05/06) - (9) **Zgodności elektromagnetycznej 2004/108/UE** (15/12/04) - (10) „**niskich napięć**“ **2006/95/UE** (12/12/06) - (11) *stosowanych norm, wzajemnie zgodnych* : - (12) Nazwisko i stanowisko wydającego deklarację : - (13) Data

**SLOVENSKY (SLOVAK)** (1) **DEKLARÁCIA ER O SÚHLASE** - (2) My: **DESOUTTER** - (3) Technický súbor k dispozícii z - (4) prehlasujeme, že výrobok (y): - (5) strojový typ(y): - (6) Pôvod produktu alebo výrobku - (7) zodpovedá požiadavkom Smerníc rady, týkajúcich sa aproximácie zákonov členských štátov, pre: - (8) „**strojné zariadenia**“ **2006/42/EC** (17/05/06) - (9) po „**Elektromagnetickú kompatibilitu**“ **2004/108/EC** (15/12/04) - (10) po „**Nízke napätie**“ **2006/95/EC** (12/12/06) - (11) *zodpovedajúce harmonizačné normy*: - (12) Meno a funkcia vystavovateľa dokladu - (13) Dátum

**LATVISKI (LATVIAN)** (1) **EK ATBILSTĪBAS DEKLARĀCIJA** - (2) Mēs, **kompānija DESOUTTER** - (3) Tehniskais fails pieejams ES - (4) deklarejam, ka šis (-ie) izstrādājums (-i): - (5) ierices tips (-i): - (6) Izstrādājuma izcelsme - (7) atbilst Padomes Direktīvu prasībām par dalībvalstu likumu piemērošanu, kas attiecas uz: - (8) „**mehānismiem**“ **2006/42/EK** (17/05/06) - (9) „**elektromagnētisko savietojamību**“ **2004/108/EK** (15/12/04) - (10) „**zemspriegumu**“ **2006/95/EK** (12/12/06) - (11) *spēkā esošajam (-iem) saskaņotajam (-iem) standartam (-iem)*: - (12) Pieteicēja vārds un amats - (13) Datums

**中文 (CHINESE)** (1) EC 一致性声明 - (2) 我们 : **DESOUTTER** - (3) 技术参数资料可以从EU总部获得。 - (4) 声明其产品 : - (5) 机器类型 : - (6) 产品原产地 - (7) 符合会员国立法会议“决定”的相关要求 : - (8) “**机械**” **2006/42/EC** (17/05/06) - (9) “**电磁相容性**” **2004/108/EC** (15/12/04) - (10) “**低电压**” **2006/95/EC** (12/12/06) - (11) *适用协调标准* : - (12) 发行者名称和地点 - (13) 日期

**РУССКИЙ (RUSSIAN)** (1) **ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ** - (2) Мы: **DESOUTTER** - (3) Технический файл можно - (4) заявляем, что продукция: - (5) тип оборудования: - (6) Происхождение продукта - (7) соответствует требованиям директивы европейского совета относительно законодательства стран-участниц по: - (8) „**Машинному оборудованию**“ **2006/42/EC** (17/05/06) - (9) по „**Электромагнитной совместимости**“ **2004/108/EC** (15/12/04) - (10) по „**Низкому напряжению**“ **2006/95/EC** (12/12/06) - (11) применяемые согласованные нормы: - (12) Фамилия и должность составителя - (13) Дата



(2) We: (3) Technical file available from EU headquarter. (Fr) Nous  
(Fr) Dossier technique disponible auprès du siège social

**Desoutter Ltd**  
37 Mark road  
Hemel Hempstead  
Hertfordshire – UK  
HP2 7BW

**B. Blanchet, CP manager**  
CP  
38 rue Bobby Sands – BP 10273  
44818 Saint Herblain – France

(4) declare that the product(s): DWTA  
(Fr) déclarons que les produits DWTA

(5) **Machine type(s):**  
(Fr) type(s)

Reference (Référence)
DWT Vision 30 Nm
DWTA Vision 30 Nm
DWT Vision 150 Nm
DWTA Vision 150 Nm
DWT Vision 800 Nm
DWTA Vision 800 Nm

Box Label: stick here  
Coller l'étiquette ici

(6) Origin of the product: Italy  
(Fr) Origine du produit

(7) is in conformity with the requirements of the council Directives on the approximation of the laws of the Member States relating:  
(Fr) est (sont) en conformité avec les exigences de la Directive du conseil, concernant les législations des états membres relatives:

(9) to "Electromagnetic Compatibility" 2004/108/EC (15/12/2004)  
(Fr) aux "compatibilité électro-magétique" 2004/108/EC (15/12/2004)

(11) applicable harmonised standard(s): EN 61010-1 EN 61326-1 :2008 EN61326-2-3 :2006  
(Fr) Norme(s) harmonisée(s) applicable(s):

(12) NAME and POSITION of issuer: B. BLANCHET  
(Fr) NOM et FONCTION de l'émetteur : (General Manager)

(13) Place & date: Saint Herblain 15/03/2011  
(Fr) Place et dat